

**JULY**  
(JULY-AUGUST)  
**1945**

# CHEMICAL PREVIEW

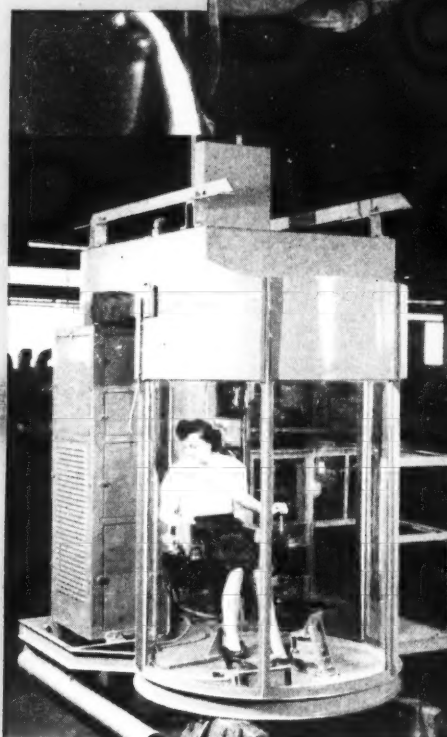
**NEW**

★ PROCESSES  
★ MATERIALS  
★ MACHINERY  
★ PRODUCTS  
★ APPLICATIONS

latest developments in chemical  
process manufacturing...for engi-  
neers, chemists and executives.



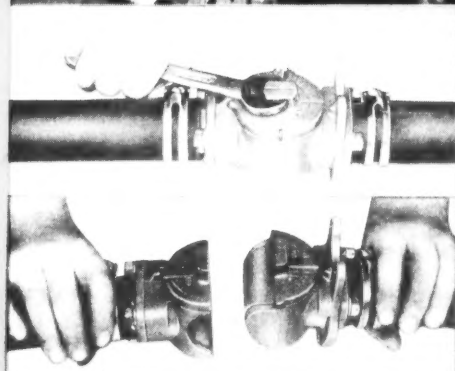
Vitreous sodium phosphate treatment for industrial water: eliminates wool yarn odor; used with rayon, etc.; improves rubberizing



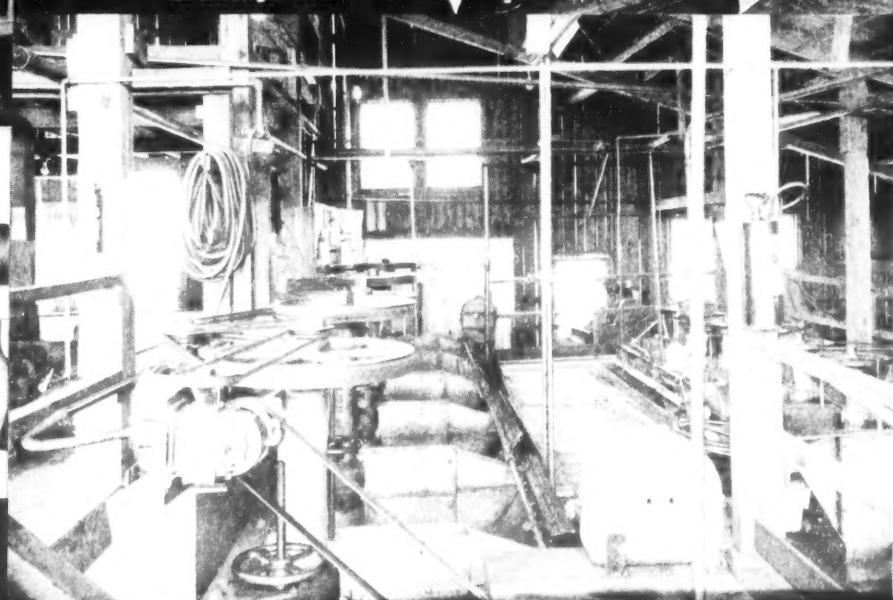
Unit for portable, bench comparator and dead weight checking of pressure instruments; hydraulic testing. Check valve holds up to 10,000 psi →

← Crane cab has air conditioning unit, plastic enclosure; simplified switch arrangement; utility platform

Flotation machines recover graphite in Alabama plant. Unit cell may be seen in background ↓



Coupling operates by 1/4 turn; disconnected lines sealed or either half left open for drainage

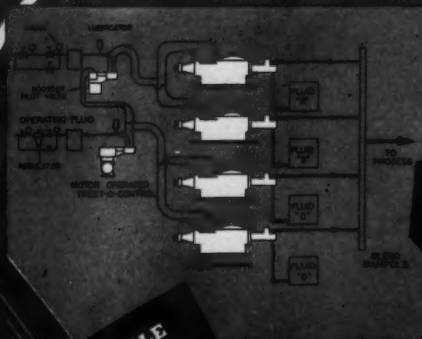


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# A Working PRINCIPLE

Continuous proportioning or batch blending of liquid components under line pressure



SCALE MODEL

PLANT INSTALLATION

## FOR Continuous Blending OR "BATCHING" OF MULTIPLE FLUIDS

In pilot plant and full scale operations, accurate proportional blending of multiple streams in varying percentage relationships is often a re-

quirement. The diagram and photographs above illustrate a simple yet infinitely flexible method which permits adjustments in formula while the equipment is in motion and at the same time, also, a change in the total rate at which the blend is being delivered, without affecting the proportions previously set.

If you have a proportioning problem, write for Bulletin 1700 or address our nearest office; our representative will gladly discuss your requirements.

Continuous BLENDING OR "BATCHING" WILL WORK FOR You



# % PROPORTIONEERS, INC. %

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## "That's Interesting"

### Liquid Plastics Used In New Artificial Leather

New liquid plastics recently developed, combined with spun glass or other fabrics, exceptional strength per pound. Building materials for prefabricated houses and strong light weight furniture impervious to moisture are just two of many uses forecast. These may be combined with fabrics to make a new type of artificial leather. Characteristic differences in physical properties, such as hardness, flexibility and abrasion resistance is attained by different types of these resins. (U. S. Rubber Co., Chemical Div., Naugatuck, Conn.)

### Analyzing Mixtures of Soap and Synthetic Detergents

Mixtures of soap and synthetic detergents can be analyzed by a new method which is said to give accurate results. The alcohol soluble portion is extracted with ethanol, and the alcohol soluble salts are reprecipitated. Soap, fatty matter and alcohol-soluble chlorides are determined separately. Synthetic detergent is the difference between the total alcohol-soluble matter and sum of soap, fatty matter and alcohol-soluble chlorides. (U. S. Industrial Chemical News)

### Simplified Color Printing

A voltage stabilizer (which plugs into 110-volt outlet) in use at Ansco laboratories assures constant power supply for powering filament photo-enlarger lamps regardless of line voltage fluctuations up to plus or minus 15%. This avoids variation in color content of the lamp. Use of this G. E. voltage stabilizer was introduced in this research to simplify color printing to a point where it can be done by photographers in their own dark rooms. Ansco plans two new war color products whereby color prints can be made (1) by a single exposure using a color transparency in positive form, or (2) through negative in complementary color.

### 15 Million Tons of Sawdust

With our 36 billion board feet of lumber cut in 1943, we had as by-products 15 million tons of sawdust and mill shavings. If the entire output of sawdust could be hydrolyzed and converted to alcohol, it would produce, it is claimed, more than 10 times our industrial alcohol output of 1941.

### Refrigerator Demand More Than 5,000,000 Units

Surveys and statistics are hardly necessary to demonstrate the pentup demand for all types of household utilities. However, recent official reports set these demands at levels a bit higher than popularly supposed. Potential buyers of new refrigerators boost the number that is expected to 5,850,000 with washing machines and sewing machines not far behind at approximately 5,000,000 each. Vacuum cleaners are next at 3,500,000.

### Let It Rain

Some post-war homes may have windows that will close themselves when it rains. The new device embodies a moisture sensitive switch that automatically sets in operation a mechanism to close the window when the first drops of rain fall.

(Continued on page 5)

For more information on product at left, specify CP A2123. . . . see information request blank between pages 2-3.



## Check Below, For More Product Information

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED BELOW . . . Check the items that interest you. Mail to publisher  
Information comes to you direct, without obligation.

Key	Product	✓	Key	Product	✓	Key	Product	✓	Key	Product	✓
A2123	Proportioners		A2181	Abraser		A2236	Rope Preservative		A2292	T-Ring Packings	
A2124	Liquid Gas Equipment		A2182	Contact Pyrometer		A2237	Cleaners		A2293	Welded Steel Flange	
A2125	Reaction Kettles		A2183	Liquid Metering System		A2238	Protective Coatings		A2294	Masonry Cutting Data	
A2126	Pumps		A2184	Diaphragm Motors		A2239	Hand Cleaners		A2295	Pumps	
A2127	Portable Conveyors		A2185	Temperature Controls		A2240	Abrasive Wheel Bond		A2296	Fork Trucks	
A2128	Temperature Controls		A2186	Manometers		A2241	Plastic Finishes		A2297	Glass Tanks	
A2129	Motors & Controls		A2187	Laboratory Glassware		A2242	Laminating Wax		A2298	Fluorescent Analysis	
A2130	Dust Collectors		A2188	Time-program Controllers		A2243	Furnace Compounds		A2299	Use References on Cerium	
A2131	Controls		A2189	Automatic Controls		A2244	Belt Dressings		A2300	Filter Sizes	
A2132	Liquid Sugar		A2190	Density Recorders		A2245	Flame-resistant Plastic		A2301	Face Shields	
A2133	Lift Truck Guard		A2191	Laboratory Furnaces		A2246	Pentalyne Resins		A2302	Buckets, Elevator	
A2133a	Heat Exchangers		A2192	Portable Test Set		A2247	Filling Material		A2303	Vertical Chemical Pumps	
A2134	Ash Handling Systems		A2193	Laboratory Cabinets		A2248	Chemicals		A2304	Spray Nozzles	
A2135	Pumps		A2194	Laboratory Furniture		A2249	Acid Handling Pumps		A2305	Centrifugal Pumps	
A2136	Portable Infrared Lamps		A2195	Granite Surface Plate		A2250a	Thermoplastic Fittings		A2306	File Cleaners	
A2137	Vibrators & Feeders		A2196	Silica Block for Pyrometers		A2250b	Thermoplastic Piping		A2307	Pipe Strainers	
A2138	Dust Collectors		A2197	Controllers		A2251	Solids Handling Pumps		A2308	Wedge Gate Valves	
A2139	Pumps		A2198	Pressure Reducing Valves		A2252	Sectional Heat Exchanger		A2309a	Pipe Booklet	
A2140	Stainless Steels		A2199	Resistors		A2253	Pipe Threader		A2309b	Fittings Booklet	
A2141	Handling Buckets		A2200	Carbon Determinator		A2254	Cartridge Heaters		A2310	Drum & Barrel Trucks	
A2142	Catalytic Cracking		A2201	Test Instruments		A2255	Steel Strapping		A2311	Pumps	
A2143	Autoclaves		A2202	Timers & Relays		A2256	Fire Hose Nozzle		A2312	Fire Extinguishing Systems	
A2144	Lift Trucks		A2203	Thermometers		A2257	Steel Grating		A2313	Synthetic Gloves	
A2145	Boiler Feed Systems		A2204	Distilled Water Meter		A2258	Vibrating Screens		A2314	Lighting Equipment	
A2146	Dures' Resins		A2205	"Flo-Watch" Meters		A2259	Sealing Tape Chart		A2315	Cylinder Gas Regulators	
A2147	Metallic Packings		A2206	Rectifiers		A2260	Electric Strip Heaters		A2316	Processing Equipment	
A2148	Protective Creams		A2207	Manometers		A2261	Fastenings		A2317	Lathe Operator's Manual	
A2149	Tank Enlarging Method		A2208a	Vacuum Pumps		A2262	Grinding Mills		A2318	Dust Collectors	
A2150	Pump Cups		A2208b	Vacuum Gauges		A2263	Screens		A2319	Rotary Pumps	
A2151	Mixers		A2209	Vaporizer		A2264	Butterfly Valves		A2320	Refrigeration Units	
A2152	Timers & Relays		A2210	Butterfly Valves		A2265	Side-drive Agitators		A2321	Couplings	
A2153	Laboratory Furniture		A2211	Temperature Regulators		A2266	Tractor Systems		A2322	Screens	
A2154	Surface Inspection Projector		A2212	Washability Tester		A2267	Scales		A2323	Gate Valves	
A2155	Controls		A2213	Voltage Regulators		A2268	Instant Water Heater		A2324	Electric Direct Drives	
A2156	Metric Gauge Blocks		A2214	Frequency Crystal		A2269	Flexible Couplings		A2325	Fire Blankets	
A2157	Surface Pyrometers		A2215	Heat Treating Furnaces		A2270	Compressed Air Dryer		A2326	Rolls	
A2158	Specific Gravity Indicator		A2216	Laboratory Furniture		A2271	Air Cleaner		A2327	Rotary Heat Sealer	
A2159	Chemical Porcelain		A2217	Tank Gauges		A2272	Glass Filter Medium		A2328	Incinerators	
A2160	Vacuum Recording Gauge		A2218a	Circuit Breakers		A2273	Adjustable Threaders		A2329	Wire Cloth	
A2161a	MH Recorder		A2218b	Safety Switches		A2274	Photocopy Equipment		A2330a	Belt Idlers	
A2161b	S Recorder		A2219	Flow Meters		A2275	Horizontal & Vertical Pumps		A2330b	Car Pullers	
A2162	Gauge Tester		A2220	Tank & Sterilizer Control		A2276	Belt Idlers		A2330c	Hand Winches	
A2163	Level Controls		A2221	Venturi Safety Valves		A2277	Steam Generators		A2331a	Micro-Pulverizer	
A2164	Bi-metallic Thermometers		A2222	Lineament Glove Tester		A2278	Air Compressors		A2331b	Micro-Atomizer	
A2165	pH Equipment		A2223	Timer-Time Switch		A2279	Processing Equipment		A2332	Industrial Glass	
A2166	Liquid Level Controls		A2224a	Level Control		A2280	Steam Traps		A2333	Friction Materials Catalog	
A2167	Laboratory Equipment		A2224b	Interval Timers		A2281	Sanitary Pumps		A2334	Industrial Trucks	
A2168	Stiffness Gauges		A2225	Controls		A2282	Chemicals		A2335	Proportioning Pumps	
A2169	Rotameter Tubes		A2226	Porous Mineral Medium		A2283a	Turbine Pumps		A2336	Filters	
A2170	Barreling Meters		A2227	Solvents		A2283b	Propeller Pumps		A2337	Flexible Metal Hose	
A2171	Direct-Acting Valve		A2228	Paracoumarons-Indene Resin		A2284	Safety Interlocks		A2338	Solenoid Valves	
A2172	"Rotamatic" Control		A2229	Corrosion-proof Equipment		A2285	Cloth Tape		A2339	Parts Cleaner	
A2173	Electric Furnace		A2230	Furfural Resin		A2286	Dust Collectors		A2340	V-Belt Drives	
A2174	Cal-metering Valve		A2231	Plasticiser Booklet		A2287	Screen Materials		A2341	Vibrating Screens	
A2175	Oscillograph		A2232	Cellophane Tubing		A2288	Corrosion-proof Units		A2342	Bag Closers	
A2176	Portable Hardness Tester		A2233a	Dicyclohexyl		A2289	Norprene Gloves		A2343	Industrial Trucks	
A2177	Control Instruments		A2233b	Phenyl Cyclohexane		A2290	Gate Valves		A2344	Valve Bags & Packers	
A2178	Solenoid Valve		A2234	Pipe Joint Seal		A2291	Platform & Skids		A2345	Rotameters	
A2179	Portable Thermometers		A2235	Pure Oxide Refractories							
A2180	Thermometers										

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MORE PRODUCT INFORMATION  
Check products which interest you, mail to us.

# If You Wish More Information On Products—

JULY-AUGUST, 1948

See Reverse Side of this Sheet — Be Sure To Give Your Address

(Listing of products continued)

Key	Product	Key	Product	Key	Product	Key	Product
A2346	Pressure Vessels	A2391	Blowers	A2435	Gas Cracker & Generator	A2477	Moisture Resistant Adhesives
A2347	Processing Equipment	A2392a	Electric Power Supplies	A2436	Displacement Pumps	A2478	Spout Type Magnets
A2348	Barrel Trucks	A2392b	Electronic Power Supplies	A2437a	Duo Expeller Catalog	A2479	Chemical Stoneware
A2349	After Coolers	A2393	Spray Nozzles	A2437b	Twin-motor Expellers	A2480	Humidity Controls
A2350	Pumps	A2394	Stainless-steel Valves	A2438	Bulk Conveyors	A2481	Mixers
A2351	Atmosphere Furnaces	A2395	Underslung Trailer	A2439	Power Shovel	A2482	"Calgon" Sodium Phosphate
A2352	Disconnect Coupling	A2396	Steam Generators	A2440	Continuous Thickeners	A2483	Portable Inspection Lights
A2353	Centrifugals	A2397	Colloid Mills	A2441	Safety Carboy Drainer	A2484	Plug Valves
A2354	Pipe Wrench	A2398	Slurry Pumps	A2442	Mixers	A2485	Fire Extinguishers
A2355	Counter-current Classifier	A2399	2-Piece Acid Drums	A2443	Circulating Pumps	A2486	Dia-ball Transmissions
A2356	Dust Collectors	A2400	Industrial Fabrics	A2444	Diaphragm Relief Valve	A2487	Paper Bags
A2357	Electric Hoists	A2401	Rotary Vacuum Pumps	A2445	Aluminum Stools	A2488	Steam Traps
A2358	Plastic Cork Coating	A2402	Magnetic Separators	A2446	Gas Analysis Apparatus	A2489	Impactors
A2359	Venturi Fan Housings	A2403	Wire Fabricated Parts	A2447	Dust Collectors	A2490	Crane Cabs
A2360	Fan Cooling Units	A2404	Filter Papers & Supports	A2448	Portable Conveyors	A2491	Pumps
A2361	Vacuum Pumps	A2405	Instant Water Heaters	A2449	Box Car Loaders	A2492	Vacuum Pumps
A2362	Kettles	A2406	Packaging Scales	A2450	Chemical Dryers	A2493	Tube Cleaners
A2363	Plastic Insulation	A2407	Carton Stitchers	A2451	Horizontal Plate Filters	A2494	Hose Clamp
A2364	Speed Drive	A2408	Ball Bearing Swivels	A2452	Timing Contactors	A2495	Laboratory Oven
A2365	Safety Gloves	A2409	Butterfly Valves	A2453	Limits Bridge	A2496	Heat Reclaim System
A2366	Filter Presses	A2410	Alloy Fabrication	A2454	Foundry Sand Tester	A2497	Printer-Developer
A2367	Fork Trucks	A2411	Filter & Slurry Feeder	A2455	Glass Insulation	A2498	Electronic Rust Preventive
A2368	Vapor-tight Lighting Units	A2412	Dust Collectors	A2456	Overhead Handling	A2499	Conveying Equipment
A2369	Masonry Saws	A2413	Cranes	A2457	Industrial Trucks	A2500	Electric Plugs
A2370	Fire Trucks	A2414	Double Damper Control	A2458	Air Separator	A2501	Cabinet Ovens
A2371	Kneading Machines	A2415	Bearings	A2459	Lathe	A2502	Stainless-Clad Steel
A2372	Steam Traps	A2416	De-ionizing Units	A2460	Conveyor Power Units	A2503	Electronic Level Control
A2373	Gears	A2417	Vacuum Pumping Systems	A2461	Magnetic Separators	A2504	Steam Traps
A2374	Packager-Feed Weigher	A2418	Lighting Equipment	A2462	Insect Control System	A2505	Rubber Tired Wheels
A2375	Stainless Steel	A2419	Filters	A2463	Glass Piping	A3508	Fused Quartz & Silica Products
A2376	Blowers	A2420	Industrial Ovens	A2464	Pumps	A2507	Autoclaves
A2377	Blowers	A2421	Spray Nozzles	A2465	Resistance Calculator	A2508	De-Ironers
A2378	Cold Plates	A2422	Explosion-proof Motors	A2466	Underground Steam Conduit	A2509	Pump Engineering Data
A2379	Scales	A2423	Handling Equipment	A2467	Flexible Couplings	A2510	Lubricating Systems
A2380	Propellers	A2424	Steel & Alloy Equipment	A2468	Filter Sheets	A1511	Ventilating Blowers
A2381	Corrosion-resistant Units	A2425	Stainless Steel Kettles	A2469	Rechargeable Batteries	A2512	Chemical Feeders
A2382	Tube Cleaners	A2426	Grafting	A2470a	Carbonic Gas	A2513	Air Duct Magnet
A2383	Roller Chains	A2427	Acid Handling Pumps	A2470b	Dry Ice	A2514	Floor Patch
A2384	Lubrikart	A2428	Steam Jets	A2471	Spray-dryer	A2515	Alloy Castings
A2385	Electronic Water Conditioner	A2429	Self-lubricating Bearings	A2472	Food Plant Hose	A2516	Sifters
A2386	Water-Fog Sprinklers	A2430	Conveyors-Elevators	A2473	Processing Equipment	A2517	Separator-Drainer
A2387	Stainless Steel Castings	A2431	De-watering Press	A2474	Laboratory Furnaces	4th	
A2388	Neoprene Gloves	A2432	Dust Collectors	A2475	Processing Equipment	Cover	Processing Equipment
A2389	Rotary Pump	A2433	Flexible Metal Hose	A2476	Adjustable Speed Drives		
A2390	Control Valves	A2434	Vacuum Pumps				

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 ceramic, cosmetic, and o...  
 See page 92.

Maximum vision in all d...  
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 See page 17.

Instant operation plus cer...  
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 ills by separating sodiu...  
 chloride. See page 90.

How To U...  
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nt of industrial processing waters pro-  
n to many problems such as eliminating  
ool fabrics. The top cover illustration  
ous sodium phosphate is employed in  
ne this difficulty. Many other indus-  
in paper making, oil refining, steel,  
, and other fields are equally effective.

in all directions, air-conditioned com-  
cting, easily operated controls feature  
rane cab (left center) now available  
employing magnetic controls or with  
f any make. The full length, clear-  
shatter-proof, and impervious to many  
serves as vestibule and means for easy  
r of panels. See page 95.

se pressure gauge tester combines in a  
ice that can be used with equal facility  
or portable testing in the field. The  
enter) shows dead weight testing while  
shows unit arranged for portable serv-

plus certain seal against leakage make  
ect coupling (lower left) very service-  
ansmitting water, hot oil, gasoline,  
lubricating oil, etc. One quarter move-  
lugs is only movement necessary in  
ions. Disconnected lines are sealed  
Very low pressure drop; couplings  
type hose or pipe line. See page 61.

in domestic graphite plant as shown in  
ght) is typical of application of this  
h is resulting in many developments.  
being used in the purification of potash  
ng sodium chloride from potassium  
ge 90.



## How To Use This Issue

arly interested in a specific type of product,  
actory of All Products in This Issue on pgs.  
phabetical listing of every product, whether  
ally or in the advertising.

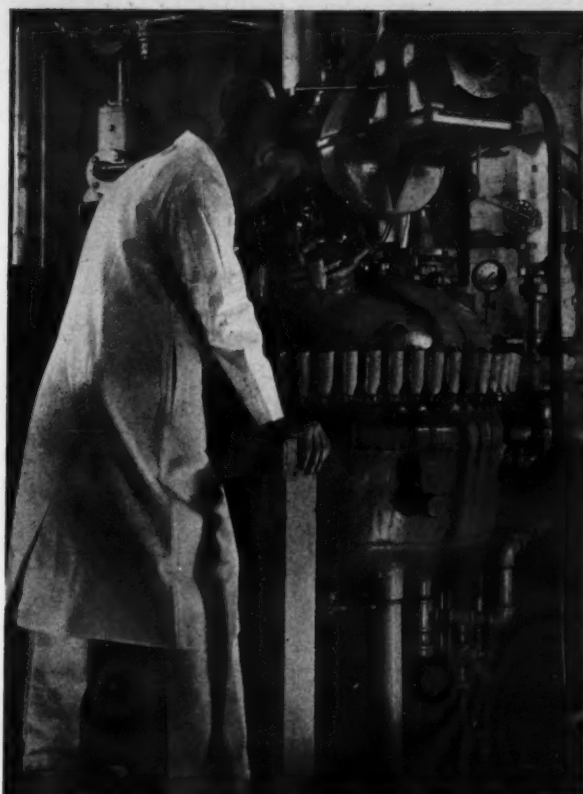
you keep abreast of latest developments,  
you have heard nothing about, you'll want  
ne rest of the pages.

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SPECIFICATIONS—PFAUDLER "P" SERIES

Rated Cap. Gals.	Actual Cap. Gals.	Max. Internal Pressure Lbs. per Sq. In.	Max. Jacket Pressure Lbs. per Sq. In.	Jacket Heating Surface Sq. Ft.
5	5	30	110*	3.5
10	10	25	95*	5.4
20	20	35	100*	8.4
30	32	30	90*	11.7
50	53	25	75*	16.4
100	116	25	75†	26.9

\*Jacket pressures coincident with internal vacuum must be reduced 15 lbs. from those listed.

†60 lbs. when coincident with full internal vacuum.

## Custom-built Stainless Steel Equipment



In addition to the many standardized series of glass-lined steel and stainless steel process units, Pfaudler is serving the chemical industry by designing and building special equipment in various materials of construction. Pfaudler's pioneering in welding of stainless steel has set the pace. Their experience with this material and other alloys is available to you in solving your special equipment requirements.

# Pfaudler

THE PFAUDLER CO., ROCHESTER 4, NEW YORK  
ENGINEERS AND FABRICATORS OF CORROSION RESISTANT PROCESS EQUIPMENT  
Glass-Lined Steel . . . Stainless Steels . . . Nickel . . . Inconel . . . Monel Metal

## HOW TO GET AN ACCURATE PREVIEW OF PRODUCTION OPERATIONS

### Pfaudler Laboratory and Pilot Plant Glass-Lined Steel Reactors are small Replicas of large Reactors

Here's a way of making sure your production yields are exactly up to your laboratory and pilot plant standards. The Pfaudler "P" Series of standardized Glass-Lined Steel Reaction Kettles, in capacities as low as 5 gallons, enables you to work out laboratory processes in equipment equivalent to your production units. They are built with the same design, the same sturdy construction as the larger reactors and with the same corrosion resistant glass.

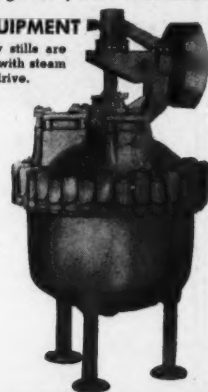
Pfaudler glass-lined equipment, so highly resistant to acid attack, is not limited to this particular service. These units can be easily and quickly cleaned and as a result can be used time after time for many different reactions involving neutral as well as acid reagents.

They can be supplied jacketed or unjacketed. Heads are provided with requisite openings, with handhole and agitator opening. Standard glass covered anchor type agitator, or 2-blade impeller, with or without adjustable baffle, are available and are of standard Pfaudler design and construction. Drive is either by direct connected motor or sheave.

Complementing this "P" Series are Pfaudler 2 and 5 gallon glass-lined stills. These units are providing protection against acid attack in such processes as distillation, chlorination, mixing, heating, digestion and other reactions. They follow the larger units closely in design and construction being supplied with ample top head openings and glass covered anchor type agitator, when desired.

### EXPERIMENTAL LABORATORY EQUIPMENT

Pfaudler standard two and five gallon Laboratory stills are equivalent in design to larger sizes. They are built with steam jackets, covers and agitators. Available for pulley drive.



THE PFAUDLER CO., Rochester 4, N. Y. Branch Offices:  
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Cincinnati 2, O.; 1228 Commercial Trs. Bldg., Philadelphia  
2, Pa.; 751 Little Bldg., Boston 16, Mass.; 1034 Washington  
Bldg., Washington 5, D. C.; Box 982, Chattanooga 1, Tenn.

When inquiring specify CP A2125 . . . see information request blank, pgs. 2-3

## ... WHICH?

We show two Eastern pumps whose performance characteristics as shown on the charts are quite similar. They are designed for widely differing purposes, however, and the application will determine the type of pump which should be used.

### MODEL E-7 SINGLE STAGE CENTRIFUGAL PUMP

... is a high speed, light duty model designed for intermittent use ... where compactness, light weight and minimum size are important factors. As it is equipped with a Universal motor, the pump should not be used near inflammable liquids. This motor has a brush life of 3,000 to 5,000 hours. Equipped with either stuffing box or a mechanical rotary seal. The performance chart of model E-7 is shown here.



MODEL E-7

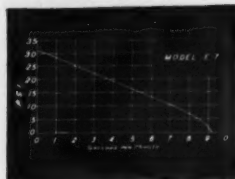
Size: 9" x 4" x 4"

Weight: 6 lbs.

Power: 1/5 H. P.

Motor: General Electric Universal Motor.

Alloys: Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy.



## OR?

### MODEL F SINGLE STAGE CENTRIFUGAL PUMP

... is a heavy duty pump designed for continuous heavy duty industrial use. Powered by a General Electric induction motor for long silent trouble-free operation. Available with either stuffing box or mechanical rotary seal. All motor enclosures, including explosion proof Class I, group D, are available.



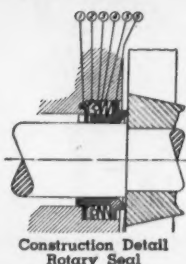
MODEL F

Size: 11 1/2" x 6 1/2" x 6 3/4".

Weight: 35 lbs.

Power: 1/3 H. P. in semi-enclosed, totally enclosed or explosion proof frames.

Alloys: Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy.



Construction Detail Rotary Seal

Part	Part List
1	Lock Washer
2	Synthetic Rubber Packing
3	Coil Spring
4	Flat Washer
5	Seal
6	Seal Ring

If you need small, highly efficient pumps for industrial uses, Eastern has over 600 variations for your application or will be pleased to design and produce one to meet your specific needs when a reasonable quantity is involved.

## EASTERN ENGINEERING COMPANY

49 FOX STREET NEW HAVEN 6, CONN.

# CHEMICAL PREVIEW

Edited for Production and Laboratory Men in the Chemical Process Industries

## What's In This Issue

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### Over 24,000 Circulation in Chemical Process Plants

Breweries, Wineries & Distilleries	Food Products	Public Utilities Consultants, Govt.
Chemical & Allied Products	Leather Tanning	Rubber Products
Coke Oven Products	Metallurgical & Equipment Mfrs.	Soap and Cleaning Compounds
Composition Materials, Fibre, etc.	Paint and Varnish	Stone, Clay & Glass Products
Drugs, Cosmetics & Pharmaceuticals	Paper and Pulp	... and Allied Lines (Carbon, Glue, Oils, Tobacco, etc.)
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	Plastics, Cellulose, Rayon, etc.	

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## A-F PORT-A-FLOW CONVEYORS FOR LARGE PLANTS—OR SMALL



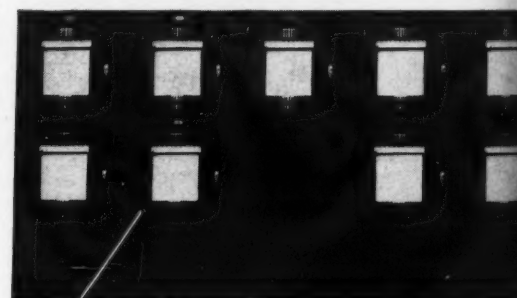
**A-F Portable Conveyors**—such as this incline-belt design which elevates cartons into refrigeration rooms, storage warehouses and freight cars—provide a flexible, efficient, low-cost handling operation for a wide variety of applications in plants—large or small. Write for details of all types of A-F Conveyors. Or, if you have an "indoor transportation" problem, let us help you solve it. Write today!

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Cincinnati 9, Ohio

THE ALVEY-FERGUSON CO.,



When Inquiring specify CP A2127 — see information request blank, pgs. 8-9

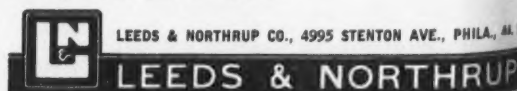


## Add THERMOHM To Your Control Vocabulary

Shifting temperature responsibilities to Thermohms, the L&N Electrical-Resistance Thermometers, used with Micromax Recorders or Controllers, is an improvement many plants can make now. It may even reduce operating costs of process plant machinery! The battery of Micromax Recorders shown above, for example, will enable one man to log temperatures detected by Thermohms at 144 different points in a food storage plant.

Thermohms have already been added to the control vocabularies of many men in refrigeration, ice cream making, conditioning, and other food and chemical plant operations.

If you want a description of the equipment, please ask for Catalog N-33C, sent on request.



MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-TREATING EQUIPMENT

Jr1 Ad N-33C(6a)

When Inquiring specify CP A2128 — see information request blank, pgs. 8-9

CHEMICAL PREVIEW

When Inquiring specify CP A2126 — see information request blank, pgs. 2-3



## "That's Interesting"

### Sugar As An Industrial Material

Industrial uses of sugar will be of the greatest importance in the war period when conditions permit unlimited production. The Sugar Research Foundation is sponsoring projects in a number of Universities. Among the aims of the Foundation are research in chemistry, biochemistry and the possibilities of sugar as an industrial material. Information on many of the newer uses of sugar has not been published. Some of the possible production applications include: acetone, alcohol, adhesives, boiler cleaning, enamel, chalk, insecticides, lubricants, mirrors, paints, polishes, textile sizing and varnish.

### Farmers Can Grow Paint

A new resinous surface coating made from sugars and starches recovered from farm crops has many of the qualities of varnish, plus the ability to withstand high temperatures and the action of many chemicals and solvents. (Domestic Commerce)

### Shark's Liver Is Richer

The pituitary gland of the shark provides serums while its liver affords a much richer oil than cod liver.

### Plastic Harmonicas Have Only 5 Parts

During the period 1936-1938 approximately 32,300,000 harmonicas were sold in the United States. Most harmonicas were imported from Germany, some from Japan. Reason for this state of affairs was the complexity of making even the simplest harmonicas — the need for craftsmen trained from childhood in assembling the parts and hand tuning the reeds. The old harmonicas were composed of more than 80 parts and required some 150 operations in assembly. The invention of the plastic harmonica by Flynn H. Magnus removed the difficulties present in the manufacture of old style harmonicas. The Magnus instrument is composed of only five parts, two covers, two reed plates and a comb section, — is injection molded of Bakelite polystyrene in four cavity dies. The reeds are in perfect tune as they emerge from the injection mold. The tone of the reeds is tested by the chromatic stroboscope which is twelve times more sensitive than the human ear but has yet to detect a flaw in these reeds. (Bakelite Review)

### Floating Refrigerators Bring Perishable Foods to G. I.'s in the Tropics

A unique fleet of huge floating refrigerators, built of concrete and insulated with mineral wool provide our fighting men on tropical islands with fresh meats, vegetables and dairy products. Some of these vessels have equipment for making ice cream. Below deck are eight holds. Construction maintains temperatures of 0-45° F. even in the deepest tropics.

### Note on Pig Iron

Iron in the system is as important to live stock as to humans. Lack of it in young swine makes them more susceptible to many infections.

### Plate of Wheats — With Wheat Syrup!

Folks who go for flapjacks, waffles, fried mush, etc. and like plenty of molasses, corn, maple and other table syrups on them may enjoy varying these with wheat syrup which may in the near future enjoy extensive use.

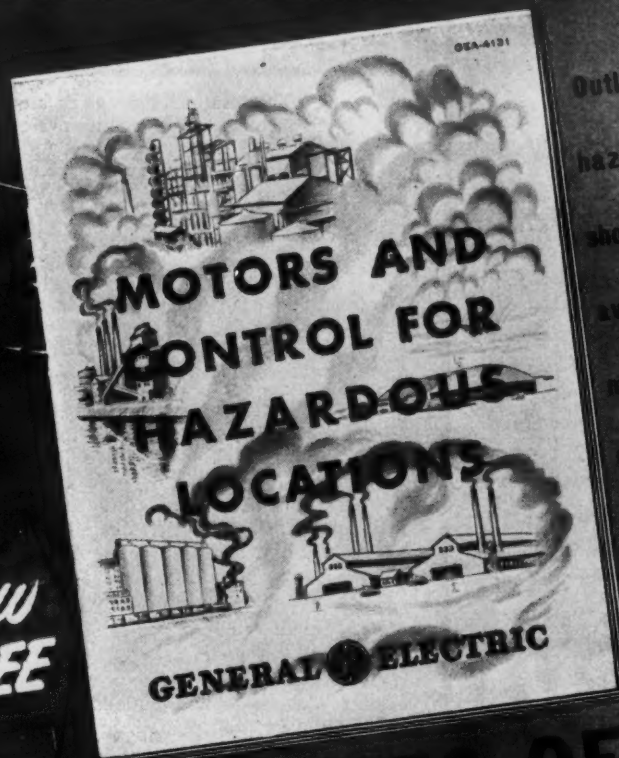
### Cigar Store Indians

There are many interesting organizations that we hear of only by accident. Here is one that is particularly appealing. It is the Society for the Preservation of the Cigar Store Indian." Members are expected to scout diligently for genuine specimens of small carved wooden Indians and report them to headquarters.

### U. S. Ate A Billion Pounds Of Cereals In '44

Breakfast cereals are a big enterprise — 1,670,000,000 million pounds were produced in 1944, an increase of 50% over 1941. Cereals to serve cereals account for 60% of the total, with oat cereals amounting to some 20%; other than oat, 10%.

*New  
FREE*



Outlines WHAT the different hazard classifications are—  
shows WHERE to use the various available types of explosion-proof motors and control—tells HOW to apply this equipment to get the best possible combination of simplicity and security.

## ON THE ELECTRICAL ASPECTS OF EXPLOSION HAZARDS

In this new G-E book, we believe you will find the clear-cut story you've been wanting on the application of explosion-proof electric equipment. For it contains, first, a concise description of the various hazards as defined by the National Electrical Code. It defines the term "explosion-proof" as it applies to industrial machines. It describes five methods of meeting explosion hazards, and discusses the merits and economics of each.

### Electrical Distribution in Hazardous Areas

In addition to a section detailing the design requirements of motors and control for both Class I and Class II conditions, you will find specific, helpful facts on electrical distribution systems, on methods of wiring, and on protective devices.

Buy all the BONDS you can—and keep all you buy

### Maintenance Hints

An important section of this new book is devoted to suggestions for extending the "life expectancy" of explosion-proof motors and control. It emphasizes especially how to preserve the effectiveness of their explosion-proof features. It should prove a boon to anyone setting up a maintenance program.

The coupon will bring your copy of "Motors and Control for Hazardous Areas." Better mail it now.

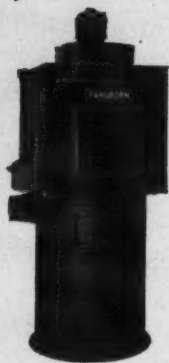
General Electric Company, Section A634-23,  
Schenectady 5, N. Y.  
Yes, I'd like to have a copy of your new manual  
"Motors and Control for Hazardous Areas" (No.  
GEA-4131).

Name \_\_\_\_\_  
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**GENERAL ELECTRIC**

When inquiring specify CP A2129 . . . see information request blank, pgs. 2-3

## Something New IN Dust Control



Here's the new Pangborn "CK" Industrial Type Unit Dust Collector. Developed through extensive research, it is our answer to the need for complete dust control on a specific job by means of a single unit possessing unusual capacity.

Fully described in Bulletin #910. Write for your copy today!

# PANGBORN

WORLD'S LARGEST MANUFACTURERS OF DUST CLEANING AND DUST COLLECTING EQUIPMENT  
PANGBORN CORPORATION • HAGERSTOWN, MD.

When Inquiring specify CP A2130 — see information request blank, pgs. 2-3

## CONTROLS FOR POSTWAR PRODUCTS



With the rush to catch the earliest possible markets with postwar products, it is important that they be designed with units that can be procured without undue delay. Manufacturers of equipment requiring electric controls will find Ward Leonard Relays, Resistors and Rheostats readily available without "time-out" for re-designing. Let us send you bulletins describing controls of interest to you.

### WARD LEONARD

RELAYS • RESISTORS • RHEOSTATS

Electric control (WL) devices since 1892.



WARD LEONARD ELECTRIC CO.,  
92 SOUTH ST., MOUNT VERNON, N.Y.

When Inquiring specify CP A2131 — see information request blank, pgs. 2-3

## New Solutions of Plant Problems

The solutions here given are selected because of their ideas in the application of available equipment or materials to overcoming certain tough plant problems. Many of these suggest basic ideas applicable in kindred or very different problems of process production.

### Sugar in Liquid Form Simplifies Handling, Assures Cleanliness

*Refining process and delivery methods make it available to plants for storage and transfer to any point in premises by metered pipe lines*

**Problem** — The problem was to enable manufacturing plants — beverage, food confectionery, to purchase and use refined sugar (sucrose) in liquid form in solution thereby obtaining many advantages of convenience and savings. Difficulties encountered included the development of a special sugar refining process and suitable facilities for transporting, storing and metering the liquid sugar. Maintaining absolute cleanliness of sugar during shipment and handling is an important factor.

**Solution** — A unique and efficient sugar refining process was developed and a system of chemical and bacteriological control devised to insure production, delivery and storage of liquid sugar of desired quality. The plant today incorporates many features not ordinarily found in a refinery. For example in the regular process line, there is a complete dual char treatment — both bone char and vegetable carbon — and this feature is highly desirable for the production of a wide range of Liquid Sugars, although not essential to the production of dry granulated sugars. Equipment for inverting both high and low grade syrups with both acid and invertase was installed. Substantial tank storage facilities are a prime factor in the production of liquid sugar. The many tanks tied together with pumps and pipe lines provide flexibility. There are facilities for blending to user's specifications. Even corn syrup is received at the refinery and blended with cane syrup to meet exacting formulae.

**Results** — The operation of melting granulated sugar and filtering it before introduction into a beverage drink is unnecessary when Liquid Sugar is used. It is desirable for manufacturers of soda fountain supplies to receive syrup containing forty to fifty per cent invert sugar, something possible only with invert sugar. This permits packing certain concentrates at higher densities than is possible with dry sugar and eliminates the expense of melting and inverting. Use of Liquid Sugar eliminates unloading at congested platforms; hand trucking and elevator transfer of sugar in bags; manual cutting of bags and measuring and dumping of sugar in process as contrasted with push button, metered facilities. Salvaging of empty sugar bags eliminated. Available floor space and production capacity greatly increased. Liquid Sugar protected at all times from contamination and by sealed delivery in stainless steel delivery tank trucks and special tank cars. Pipe lines in plants using Liquid Sugar do not have to be cleaned frequently. High density and manner of handling prevents fermentation. Complete information on "Flo-sweet" Liquid Sugar applications and installations as they apply to specific plant requirements are available on request.

REFINED SYRUPS & SUGARS, INC., Dept. CP, Foot of Vark St., Yonkers 1, N. Y.

When Inquiring specify CP A2132 — see information request blank, pgs. 2-3

### Overhead Guard For Lift Trucks

*Shields operator from falling objects; easy to install*



PROTECTS OPERATOR

**Problem** — Providing adequate protection for operators of lift trucks without inconveniences or restrictions that would cause discomfort, hamper efficient maneuvering of truck.

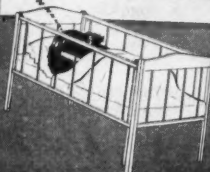
**Solution** — Truck manufacturer has designed overhead guard to fit all trucks made by company, to provide maximum protection against falling objects. Installed in few minutes with bolts and clamps, no cutting or drilling of frame is necessary. Constructed in two standard sizes of rugged steel tubing. Transverse lengths of 1½" steel tubing front and above are notched and arc-welded to side members of the frame. Back sections of the side frame members are made of 1½" black steel tubing. Front sections, extending over back sections are 2" in diameter.

TOWMOTOR CORP., Dept CP, 1226 E. 152nd Cleveland, Ohio.

When Inquiring specify CP A2133 — see information request blank, pgs. 2-3

A NEW BOOKLET

Care and Handling of HEAT EXCHANGERS



**WHITLOCK'S** new booklet, just off the press, will help make your heat transfer equipment serve you better. In simple language Whitlock Engineers offer suggestions on installation, operation and maintenance of heat exchangers, with suitable instructions for cleaning and operating your present equipment for peak efficiency.

Send for your free copy to-day.

### the WHITLOCK MANUFACTURING CO.

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New York Boston Chicago Philadelphia Detroit Richmond  
In Canada: Darling Brothers, Ltd., Montreal

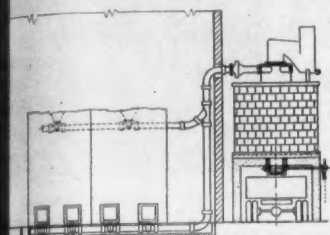
When Inquiring specify CP A2133a — see information request blank, pgs. 2-3



## New Solutions

### Redesigned System Handles Most Ash Removals Without Spraying

*New models have separator and washer combined in one unit which is installed on top of silo*



ash conveyor pipe line, fly ash and soot line, steam exhaustor and silo

**Problem** — Costs in time and labor in removing ashes by ordinary methods are too high and flying ashes and soot are objectionable. Delays in removal result in excessive accumulations.

**Solution** — An easily installed

system, just redesigned to combine separator and air washer in one unit provides for constant, easy removal of ashes. The steam exhaustor is located in the pipe line where it enters the receiver. The mixture of ash, steam and air enters the circular receiver tangentially at high velocity, and the centrifugal action literally "throws" all the heavy ash out of the steam and air before it has traveled more than half way around the receiver. The ash falls directly into the silo, while the baffle plates in the separator, in conjunction with the greatly reduced steam velocities, cause practically all of the light ash to settle into the silo through the conical baffle. The steam air mixture then passes into the washer, where any remaining light fly ash can be removed by sprays and washed away through a 4 inch soil pipe line. However, the separating action that takes place in the receiver and separator is so effective that in most installations, it is not necessary to use the sprays in the air washer. In operation, there is enough moisture imparted by the steam to the ash to settle out practically all light ash. There is, however, no "wetting" of the material, which minimizes the possibility of packing and freezing in the silo. The four foot diameter receiver is constructed of  $\frac{3}{4}$  inch thick hard iron and is fitted with white iron baffles. The separator consists of 24 inch shell, constructed of  $\frac{3}{16}$  inch steel plate, the base of which extends down into the receiver. The air washer is 24 inches square, constructed of 12 gauge welded steel plate. It is equipped for connecting to four inch soil pipe to drain off spray water.

**Results** — Speedy, efficient removal of ashes with greater cleanliness. Time and labor savings and easy transfer of ashes from silo to trucks or cars.

BEAUMONT-BIRCH CO., Dept. CP, 1505 Race St., Philadelphia 2, Pa.

When inquiring specify CP A2134 — see information request blank, pgs. 2-3

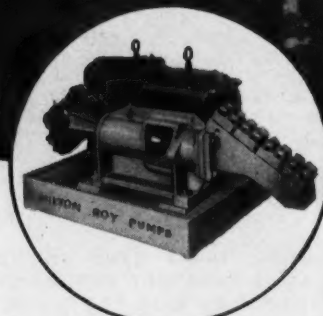
Has a recent use of your equipment solved a difficult chemical plant problem? The equipment may be new or from your standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) How was equipment used — in standard or modified form? (4) Results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address the Editors.

CHEMICAL PREVIEW

737 N. Michigan

Chicago 11, Ill.

## MILTON Roy Step-Valve PUMPS



### The Trend is from Batch to Continuous Processing

Continuous processing is now possible in many industries where batch processing has heretofore been common practice.

Modern instrumentation is available to enable you to know exactly what is happening in the process . . . to know rates of flow, temperatures, pressures, conductivity, pH value, etc.

Milton Roy Pumps are available to enable you to apply this knowledge to the exact control of the process . . . to pump processing chemicals of all kinds, at any temperatures, against any pressures, in the precisely controlled volumes absolutely necessary in continuous operations.

Milton Roy has supplied controlled volume pumping equipment for numerous installations in various industries . . . in many cases electronically controlled

equipment that makes pumping a completely automatic operation.

Milton Roy chemical engineers are qualified to advise with you . . . to make recommendations for continuous processing pumping equipment based on knowledge and experience. Consultation is invited.

### Example

Continuous pulp digestion provides a typical example of how thermal, chemical and mechanical treatments may be combined in a continuous process to effect a material reduction in normal digestion time and processing costs, also to assure a greater uniformity of product. In digesters built by Paper and Industrial Appliances, Inc., the quantity of chemicals fed is controlled by the accurate action of Milton Roy Controlled Volume Pumps.

## MILTON Roy PUMPS



1310 E. Mermaid Ave., Chestnut Hill - Philadelphia, 18, Pa.

When inquiring specify CP A2135 . . . see information request blank, pgs. 2-3

# NOW AVAILABLE

## Handy New INFRARED UNITS for Quick Heating UP TO 800° IN SECONDS

OPERATES ON  
AC OR DC  
CURRENT



MODEL 60-000 HAND UNIT ONLY \$7.50  
MODEL 60-200 HAND UNIT WITH ADJUSTABLE ARM  
AND CLAMP TYPE BASE FOR MOUNTING \$11.50

Think of the many places where you can use this "quick heat" utility tool in laboratory, maintenance and production operations. Directs Infrared radiant energy exactly where you want it for baking, drying, or preheating small areas. For instance, a temperature of over 800° F. can be applied to 20-gauge black metal, 1½" in diameter in 1½ minutes. Speedy, flexible, safe. Hundreds of uses in industry. Furnished complete with 375-watt 110-volt lamp, 18 ft. cord set, plug, and off-on switch—ready for use. Reflector is gold plated inside, gray wrinkle finish outside. Prompt delivery on immediate orders.

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in the Utilization of  
INFRARED RADIANT  
ENERGY



Trade Mark  
Reg. U. S. Pat. Off.

## New Solutions

### Fluid Catalytic Cracking to Have Various Post War Applications

*Advantages in oil refining stimulate interest in application of this principle to other industries where catalytic reaction is desirable*

**Problems** — Two products for which the war created a tremendous demand are (1) selected Hydrocarbon gases needed in the production of aviation alkylate and Buna S. rubber; (2) Base stocks for 100 octane gasoline in quantities and with octane rating far above the prewar capacity for the industry.

**Solution** — During the last three years the Fluid Catalytic Process has (1) emerged from the laboratory, (2) proved its value in the increasing number of such units to go on stream; (3) today accounts for over 50% of the country's total catalytic-cracking capacity. The fluid Process utilizes powdered catalyst and performs through the use of the principle of differential heads. The description and drawings shown here show how it is used to circulate large quantities of catalyst per hour in a modern Fluid Catalytic cracking plant.

The problem is to move dense, fluidized, powdered material (catalyst) from vessel A to vessel B. Ordinary gravity would cause the material to drop down pipe C but it would pack in the bend at the lower end of pipe D. And yet, if we make certain simple additions to the system, as shown in figure 2 we find that the powdered material flows from A to B. The insertion of a valve at the lower end of pipe C permitting a controlled portion of

## SYNTRON

WATER, AIR, or OIL OPERATED



### "Explosion-Proof" "Hydra-Pulse" VIBRATORS

For free-flowing bins, hoppers and chutes.

Valve control of power.

From 2400 to 4800 vibrations per minute.



### "Hydra-Pulse" VIBRATING FEEDERS

For the controlled feeding of bulk materials—with valve control of rate of flow.



### "Hydra-Pulse" FEEDER MACHINES

Complete machines, made up with vibrating feeder, and vibrated hopper.

Valve control of rate of flow.

Write for particulars.

SYNTRON CO.

110 Lexington, Homer City, Pa.

When Inquiring specify CP A2137 — see information request blank, pgs. 2-3

## SLY DUST Control

Adopted as  
STANDARD  
By Many Firms

Typical Sly Dust Filters on a standard support with walkway, with dust pipes leading to the filter. All Sly Dust Filters are of weather-proof construction for out-of-door installation. Standardized construction for low cost.



The Sly Dust Filter actually filters the dust out of the air by passing it through a series of cloth bags ingeniously arranged in a compact space within the filter case. The cleaned air contains no visible dust.

Sly Dust Filters comply fully with the requirements of the laws and regulations of the various states. This equipment is not expensive.

ASK FOR BULLETIN  
98 . . Tell us your problem so that we can write you fully!

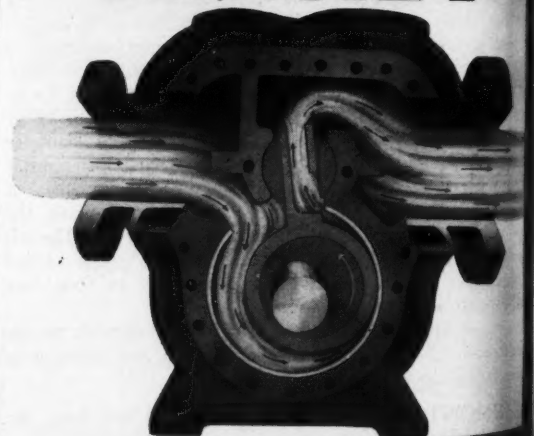
THE W. W. SLY MFG. CO.  
4754 Train Ave., Cleveland 2, O.

INDUSTRIAL DUST CONTROL

SLY

When Inquiring specify CP A2138 — see information request blank, pgs. 3-4

## KINNEY



### SD ROTATING PLUNGER PUMPS

Make light work of difficult pumping jobs. Easily handle viscous materials such as molasses, white lead, asphalt or cup grease. Positive displacement . . . accurate as a meter. Built without valves, springs or gaskets. Available plain or steam jacketed.

Send for Bulletin 18.

KINNEY MANUFACTURING CO.

3573 Washington St., Boston 30, Mass.

New York, Chicago, Philadelphia, Los Angeles, San Francisco  
We also manufacture Vacuum Pumps, Clutches and Diffusers  
Distributors.

When Inquiring specify CP A2139 — see information request blank, pgs. 3-4

CHEMICAL PREVIEW

When Inquiring specify CP A2136 — see information request blank, pgs. 2-3



## "ARMORED" AGAINST ATTACK

**IngAclad offers you a sensible, low cost way to provide protection against corrosion**

Just as the armor plate protects the battleship against enemy attacks, so a 20% ply of solid stainless bonded to mild steel gives perfect protection against corrosion.

In most installations, protection is needed only on the contact side. Why pay for more stainless than you need?

As makers of both Ingersoll Solid Stainless Steel and IngAclad Stainless-Clad Steel, we will be glad to have our Engineers advise you without prejudice, to give you the utmost stainless protection at a minimum of cost.

### INGERSOLL STEEL & DISC DIVISION

Borg-Warner Corporation  
310 South Michigan Avenue • Chicago 4, Illinois  
Parks: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Mich.



**INGACLAD**  
STAINLESS-CLAD STEEL

When Inquiring specify CP A2140 — see information request blank, pgs. 2-3

## OWEN BUCKETS

*move mountains  
of material  
daily*



**The OWEN BUCKET CO.**  
7080 Breakwater Ave., Cleveland, O.  
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**A MOUTHFUL AT EVERY BITE**

When Inquiring specify CP A2141 — see information request blank, pgs. 2-3

## New Solutions

the powder to enter D, where it is aerated with air or oil vapors, decreases the density of the material in D to a fraction of the density of the material in C. The material will then act as a fluid and flow up D into vessel B. This movement will continue as long as the pressure in A and density of material in A-C are greater than the pressure and density in B. In order to make the action a complete and continuous cycle and return the powdered material from

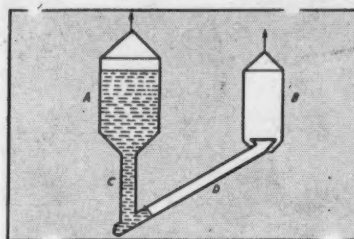


Figure 1

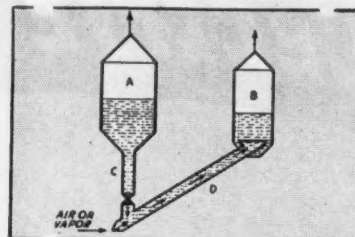


Figure 2

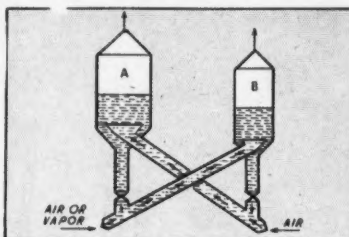


Figure 3

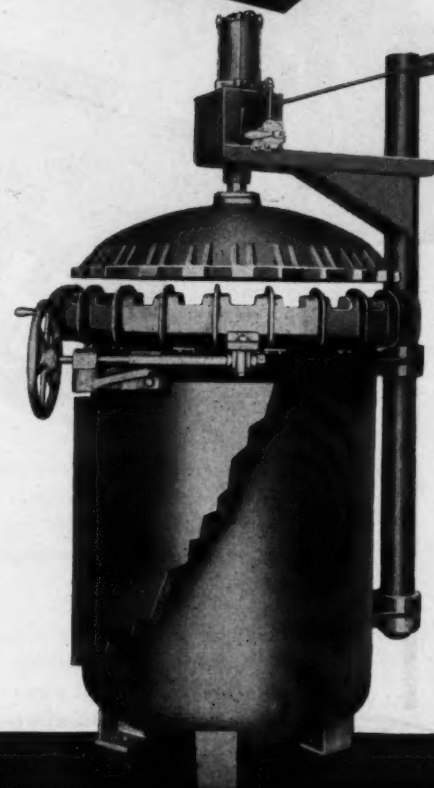
and catalyst. Following reaction, the cracked vapors rise continuously from the bed and flow to a conventional fractionating system. Simultaneously, the spent catalyst, now having coke from the cracking reaction deposited on it, also separates continuously from the bed and is ready to return to the regenerator. To indicate the wide range of size over which the process is applicable, units have been designed ranging from 1760 BPD to 35,000 BPD. The success of the principle has stimulated interest in its application to post-war industries, other than oil refining, where catalytic reaction is desirable.

**Results** — Economy of operation — for example, when operating on any feed but the lightest gas oil, the heat generated in the regenerator may be used to supply all the fuel and steam utilities, and in some cases, a surplus is available. High yields of the most desirable products. Widest variety of feeds utilized to produce variety of products. Continuous operation. Extreme flexibility.

M. W. KELLOGG CO., Dept. CP, 225 Broadway, New York 7, N. Y.

When Inquiring specify CP A2142 — see information request blank, pgs. 2-3

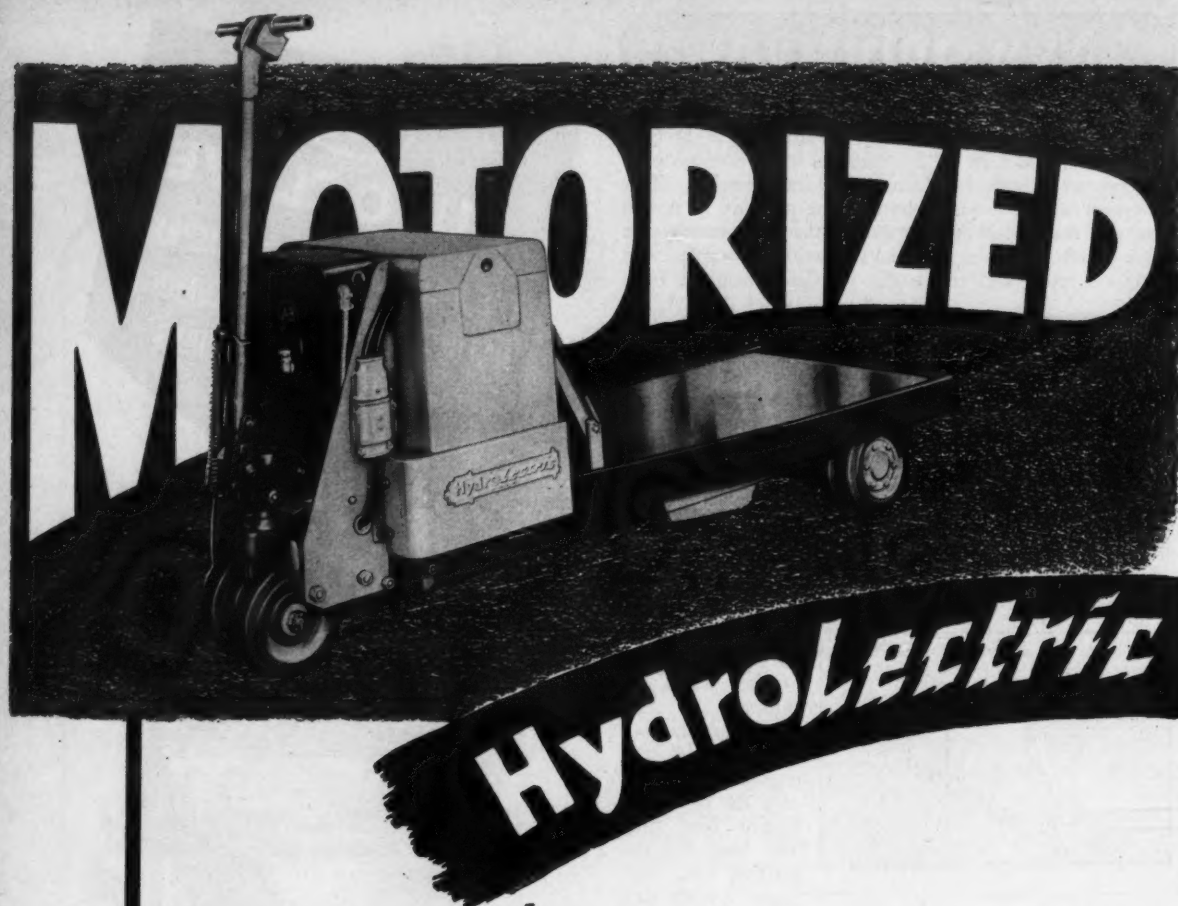
**J&C**  
**AUTOCLAVE**  
THE IDEAL METHOD FOR IMPREG-  
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AND OTHER MATERIALS



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**JACKSON & CHURCH COMPANY, SAGINAW, MICHIGAN**

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Men are not horses — move your loads under *power* — safely — fast — effortlessly — for only 12 cents per day for power cost with the MOTORIZED Hydro Electric, engineered and patented by W. Stuebing of Cincinnati.

This truck is practical — a fiend for work — dependable — a glutton for punishment. There are no chain drives to break at critical times — or to stretch. The Transformer is by Allen-Bradley — bearings by Timken and New Departure — steel construction. No other truck equals the Hydro Electric's record of sustained performance.



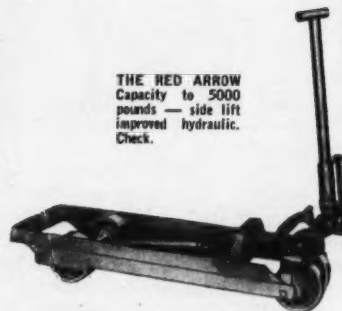
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**LIFT TRUCKS INCORPORATED**  
2425 SPRING GROVE AVENUE  
CINCINNATI 14, OHIO

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Write — phone or wire today for full information and get ready to meet cost reductions which post war competition will necessitate.

THE RED ARROW  
Capacity to 5000  
pounds — side lift  
improved hydraulic.  
Check.



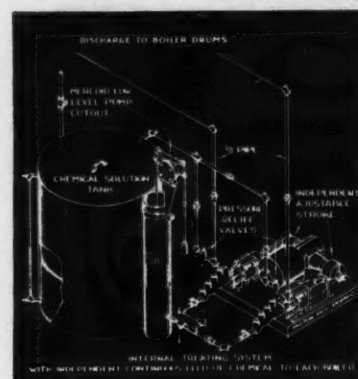
THE HYDROMATIC  
Fluid Ram — multi  
stroke lift — ca-  
pacity 3500 to  
8000 pounds.



## New Solutions

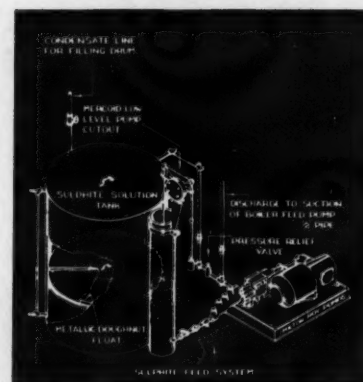
### Packaged Units for Internal and Sodium Sulfite Boiler Treatment

*Simplify selection and installation of equipment feeding directly into boiler drum and into feed water lines*



System feeds chemicals to meet steaming rate of boiler.

feeding Sodium Sulfite into feed water lines and for feeding other chemicals into boilers. The selection of units of proper capacity and their installation usually involves considerable amount of detail.



System in available capacity to treat 1 million lbs. water per hour.

checks. These may be chosen from table, also. This assembly is for internal treating. The low level cut-out furnished to stop the pumps and ring the alarm when recharging is required. The tanks in a range of capacities (50, 100, 175, 250, 500 gals.) are for normal requirements of chemicals with a minimum hardness of feed water of parts per million where internal treatment only is employed. With lime and soda softeners, capacities are sufficient for an average maximum hardness of feed water of 30 parts per million, while on zeolite softeners, a maximum of 100 parts per million is allowed. The packaged unit for the continuous feed of sodium sulfite in controlled volume includes (1) One 50 gallon welded tank, 12 gauge steel, complete with cover, gauge glass, low level cut-out, bell alarm and doughnut float. (2) One "Step-Valve" with screw adjustment of stroke. The

**Problem** — The necessity for feeding various chemicals to boilers for the prevention of scale, to control alkalinity, to remove dissolved oxygen, to protect against brittleness, corrosion, and pitting involves the careful selection of chemicals and equipment to be used. Competent authorities recommend the use of distinct systems for

**Solution** — To simplify meeting such requirements, packaged units have been designed as follows: (1) One heavy gauge welded steel tank, complete with cover, gauge glass, low level cut-out and bell alarm (sized from a table that is available). (2) Pump — "Step-Valve" design; non-clogging, self-cleaning valves; instantaneous acting double-acting



## New Solutions

ump has a capacity of three gallons per hour against any pressure up to 250 pounds maximum. It may be adjusted to any capacity within its range. With this system capacity is available for treatment up to one million pounds of boiler feed water per hour with a maximum dissolved oxygen content of 0.25 pounds per minute, sufficient for practically any feed water system. To charge the tank the center cover of the doughnut float is removed, the tank filled with water and a predetermined quantity of sodium sulfite added as may be indicated by the control test. Specification tables are available showing the quantity of sodium sulfite which should be charged to meet various requirements. The function of the doughnut float is to exclude, as far as possible, contact of the sulfite solution with air. (The various pumps referred to here can be equipped with electronic controls to continuously operate at any speed proportional to the rate of feed water flow as measured by a meter.)

**Selection and installation of boiler treating systems made as simple as the addition of any standardized equipment. Provide treating solutions to normally last 12-24 hours pumping in boiler installations of various sizes.**

MILTON ROY PUMPS, Dept. CP, 1300 E. Chestnut St., Philadelphia, Pa.

When inquiring specify CP A2145 — see information request blank, pgs. 2-3

## Phenolic Resin Aids in Making Fine Hard Synthetic Rubber Stock

*Used with Buna N and Buna S; compatible with Neoprene and natural rubber*

**Problem** — Processing synthetics to reproduce the characteristics and properties of hard and semi-hard rubber stocks as produced from natural rubber. It has been extremely difficult to add sufficient loading during milling.

**Solution** — A method of processing most synthetic rubber with a phenolic resin (Durez) has been evolved whereby excellent hard and semi-hard rubber stocks can be reproduced. To date, the use of this resin has been confined to Buna S and Buna N but it is known that the resin is compatible with Neoprene and also with natural rubber. Because of the stiffness of synthetic rubber during milling and processing of semi-hard and hard compounds it has been extremely difficult to add sufficient loading during milling. With natural rubber using such materials as carbon black this was not a problem. The resin is thermosetting and compatible with the synthetic rubber, reinforcing it in much the same manner as carbon black. For example a Buna N stock, having 50 parts of resin on 100 parts of rubber, and normal sulfur and accelerator content, gives the resulting vulcanizate a hardness of 92, a tensile strength of 2600, and an elongation of 300%. Furthermore, this material passes the ASTM freeze test without breaking. A small percentage of the resin could be used to soften the compound at the mill and carbon black added in sufficient quantity to secure hardness.

**Results** — Excellent hard and semi-hard rubber stocks produced. These machine readily and oil and heat resistance are improved because of the inherent oil and heat resistance of the resin when thoroughly cured. The resin is also inherently unaffected by oxygen and it is therefore logical to assume that it will serve as an oxidizing agent. Depending upon the amount of resin used, the amount of reinforcing agents normally required to give a definite hardness can be eliminated or reduced proportionately.

DUREZ PLASTICS & CHEMICALS, INC., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP A2146 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

# DURAMETALLIC

## Packings



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If there is a better way to pack your pumps, valves, agitators, compressors and other power and processing equipment — you want to know about it . . . and we want to tell you about it.

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When inquiring specify CP A2147 . . . see information request blank, pgs. 2-3

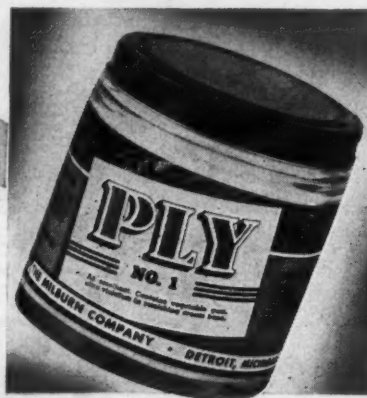
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revealed nothing to match the  
sheer beauty, tensile strength and  
durability which characterizes  
the multiple uses of commercial NYLON.



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Safety men, industrial hygienists and production  
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There is a specific PLY formula—cream or liquid  
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When inquiring specify CP A2148 . . . see information request blank, pgs. 2-3

## New Solutions

### Mushroom Method Enlarges Storage Tanks up to 100% of Capacity

*Job quickly completed without dismantling original structure; practically all of which is used in assembled form*

**Problem** — Enlarging liquid storage tanks to as much as twice initial size without dismantling the original structure.  
**Solution** — The old tank is literally boosted to new capacity height, as new rings are added at the base by a process which makes use of virtually all of the original structure in assembled form. Such re-use, along with utilization of the original foundation and the minimum dislocation of connections, contributes much to the economy of the process as well as to the speed with which a job may be completed. Providing an alternative to new tank construction to meet needs of increased storage capacity, this method is particularly useful where facilities are crowded and there is room only for expansion upward. As much as 100% additional capacity can be added by the organization's men in performing the following operations. They cut the existing tank shell at the base, add new rings



#### NEW SHELL EASILY BUILT AROUND OLD TANK

plates, and build a new shell around the old structure to give the desired height. Water is then run into the tank up to the new shell level, so that compressed air may be introduced to float the old cover shell up to the new level. Various controls hold the tank steady and level to 1/16 inch, while 4 inch filler plates are inserted between the shells, and the two units are tack welded in place. When air pressure is released, and the water drained from the tank, the two shell sections and fillers are completely welded on the outside. Inside the old shell is trimmed and welded at intervals around its circumference, and the enlarged tank is ready for connections and service. Originally developed to obtain better buoyancy control of petroleum storage tanks in areas subject to flood, the new method can be used to build up tanks having either umbrella type roofs, or roofs supported by center columns.  
**Results** — Capacities boosted up to 100% without dismantling. Provides for increased storage in instances where space is already limited.

STACEY BROS., GAS CONSTRUCTION CO., Dept. CP, Cincinnati, Ohio.

When inquiring specify CP A2140 — see information request blank, pgs. 2-3

For complete information regarding products described in this issue a handy request slip is provided between pages 2 and 3. Check the items that interest you, fill in name and address and send it to publishers. Information will come to you promptly.



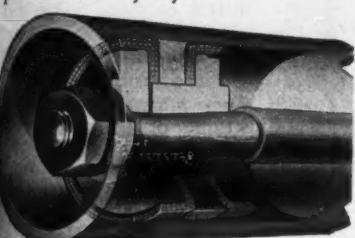
## New Solutions

### Composition Cups for Hydraulic Applications

A cylinder or liner walls exactly, long service under high pressures — Manufacturer of radio parts might to increase life of cups on three inch in extrusion press producing ceramic condenser tubes. The cup on the end of the ram first presses the dry, putty-like ceramic stock into the hopper where it becomes creamy under heat and pressure of 2,345 lbs. per sq. in. The heated material flows freely through an orifice at a consistency of facial cream, but hardens upon exposure to the air. Cup life ranged from a few hours to three days.

**Solution** — Special composition cups, selected in the right consistency from the three different grades in which they are made were installed.

**Results** — Cups now operate continuously for periods of ninety days.



Cups fit cylinder walls exactly.

**Other applications** — Oil field driller increases cup life in four inch cylinder for pulling casings (hydraulic fluid-water, under 1,000 lbs. pressure) from two hours to eight hours. In steel plants these cups are used on cylinders operating soaking pit covers, increasing period of cup service from three weeks to seven months.

**Description** — These cups made of "Darling" composition remain constant under sudden and severe temperature change. They retain their dimensional stability and are homogeneous and chemically stable as well. They are also unusually resistant to abrasion and corrosion. They are available in three different textures, — hard, medium and soft. Made in standard sizes from 1-20 inches and in oversizes and undersizes to fit reamed cylinders and liners. Manufactured to tolerances of .005 ins. Feeds as low as 1/4 in. per min. obtained on machine tools equipped with these cups. In addition to use on hydraulic and air cylinders they are used for packing on pistons of reciprocating pumps. Literature on request.

DARLING VALVE & MFG. CO., Dept. CP, Williamsport, Pa.

When inquiring specify CP A2150  
— see information request blank, pgs. 2-3

For more information on product at right, specify CP A2151  
... use information request blank between pages 2-3.

# Process Adapted Agitation

## IN CONTINUOUS OPERATIONS

In many cases economies can be effected when mixing and agitating processes are carried out on a continuous basis. Engineers of the Mixing Equipment Company have been carrying on an exhaustive study of performance characteristics of impellers and other basic research. These studies have advanced the technology of agitation of fluids both in batch and continuous processing. Fundamentally agitation may be considered as a form of liquid transport within a closed vessel producing a physical change.

From the chemical standpoint, these physical changes are used to produce a desired environment for chemical reaction as well as several other simple physical results. These physical changes, for convenient simplification, can be divided into six categories:—

It is obvious that chemical reaction may occur as the result of one or more of these physical changes although chemical reaction frequently does not occur in mixing operations.

Blending Miscible Liquids	Mixing Immiscible Liquids	Crystal Size Control	Gas Absorption & Dispersion	Suspension of Solids	Heat Transfer
Simple Mixing of soluble liquids as in reducing concentration.	Washing of Liquids Extraction Contacting Caustic Treating Emulsions	Precipitation Evaporation Systems	Hydrogenation Aeration Gas Scrubbing Chlorination Gas Washing	Slurries Slaking Lime Suspension of filter aid, activated carbon, Fuller Earth, Crystals while dissolving.	Soils Evaporator Reactor Vessels Heating Cooling

When mixing is considered basically as merely producing physical change, it is obvious that it can be applied successfully to either batch or continuous flow-through operations.

**THE PROBLEM** . . . Difficult problems do not occur directly in connection with the application of mixers to continuous flow-through processes. Difficulties ordinarily considered in connection with flow-through agitation occur in devising accurate metering and proportioning devices. Once this has been achieved, the problem of agitation is a simple one.

**FACTORS TO BE CONSIDERED** . . . In designing agitation for flow-through devices two important factors that must receive consideration are the time factor and short circuiting. Very few reactions and very few physical changes can take place instantaneously. The mixing chamber or vessel must provide a suitable residence time or retention period to insure the completion of the chemical reaction or physical change before effluent is discharged from the vessel.

The problem of short circuiting or the passing of unreacted or uncharged components directly through the vessel without being retained for the necessary time is one of the common difficulties in applying agitation to flow-through systems. This can be overcome and percentage of short circuited material can be controlled by recycling or staging.

By adjusting volume or number of vessels in series, the percentage of allowable short circuiting can be reduced to the minimum desired. It is also possible to recycle material to insure complete residence time where a battery of vessels is used. Recycling in the case of a single vessel is not effective except for the additional volume of inventory which the piping and pump system provides.

**TYPICAL APPLICATIONS** . . . The small capacity pipe line type of agitator is considered as only suitable for simple blending operations where the materials are very miscible and where sufficient pressure drop exists, as through a length of pipe line, to contribute to the blending. However, it has been found that even in such simple applications as the flash mixing of chemicals in water and sewage treating, a mixing chamber providing one-half minute to three minutes retention time is essential for best results. The merit of this practice is well borne out in more difficult applications, such as catalyst contacting and in the caustic treating and Doctor treating of hydrocarbons. Gas contacting and absorption can of course be included in the discussion of continuous mixing although in many cases the gas phase only is on a flow-through basis, the liquid being retained.

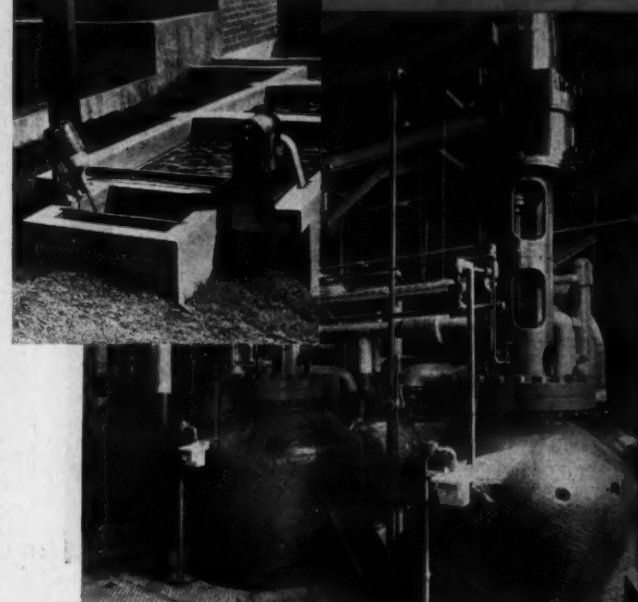
The only common application which offers serious difficulties is the continuous dissolving of solids whose dissolving rate, or particle size, requires prolonged retention. It will be seen that undissolved solids can be carried into the effluent unless screened out.

**"LIGHTNIN" AND "MIXCO" TOP ENTERING UNITS** (Propeller and Turbine Types). The extended line of Heavy Duty Agitators (up to 50 H.P.) for open and closed tanks and for batch or continuous operations, finds wide application in the newer catalytic processes, providing intimate dispersion, fine particle size and high rates of recirculation within tank. Newer types of impellers designed according to proven hydraulic principles, decrease weight and diameter of impellers. Selection of drives to meet any operating conditions.



The Basis of Our Recommendation . . . Mixing Equipment Engineers offer their services in the solution of any problems involving batch or continuous agitation of liquids to produce physical and chemical changes as included in the table above. Twenty-three years of experience and research have resulted in an organization, with facilities and skill which qualify Mixing Equipment Company as a leading authority in the whole broad field of agitation.

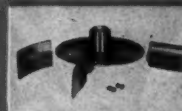
**MIXING EQUIPMENT CO., INC.**  
1085 GARSON AVENUE ROCHESTER 9, N. Y.



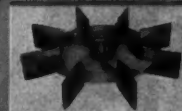
Above—High pressure continuous contacting of catalyst and hydrocarbon in Shell Oil Company plant—typical of newer continuous processes handled with "MIXCO" Turbine Agitators. (See Illustration)

Upper left—Flash mixer in water treating—one of the oldest examples of continuous treating. Portable mixer in shown. Turbine type used for larger installations.

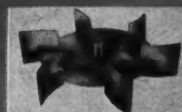
## "MIXCO" TURBINE AGITATORS



Showing blade types and method of attachment. Number of blades is variable. Blades may be cast or fabricated.



Braught blade Radical Flow Turbine. Modified shape for general agitation, preferred for load and rubber covering.



Curved blade Radical Flow Turbine. Modified form for blending and general agitation.



Dispenser type Radical Flow Turbine. For gas-liquid, liquid-liquid, solid-liquid dispersion.



SIDE ENTERING MIXERS. 1 to 25 H.P. for horizontal use. Any size tank. Propeller type only. Many models and drives. In use on tanks up to 5,000,000 gallon capacity.

**MIXING EQUIPMENT CO., Inc.**  
1085 Garson Avenue, Rochester 9, N. Y.

Please send me the literature checked:

- ☐ B-66 and B-76—Side Entering Mixers
- ☐ B-78—Top Entering Mixers
- ☐ B-75—Portable Mixers (Electric and Air Driven)
- ☐ B-77—Laboratory Mixers
- ☐ Mi-11—Operating Data Sheet

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Pause for a given time — then go ahead for another interval.

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are only a FEW of the MANY actions that can be properly controlled by

### Cramer Chronometric Controls

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Write for Technical Bulletin covering subject in which you are interested.



When Inquiring specify CP A2152 — see information request blank, pgs. 2-3

## ★ INSTRUMENTS of CONTROL

### Projector Cabinet for Testing Plastic Replicas of Surfaces

*Facilitates use of system for surface inspection and comparison*

**Uses** — For inspection of surface finishes, pertaining to metal, paper, wood and ceramics. In this "Faxfilm" method an exact replica of a surface is made in clear plastic in a minutes time and projected at 100 diameter magnification and compared with specified standards.

**Features** — Replica is mounted in small frame — 2 inches square — for convenient use in projector and also for safe, easy filing for permanent record. Quick inspection of incoming materials and means of checking along production lines.

**Description** — This method was described in Chemical Preview for November 1944 — Item Number CPA 533. The new projector described here is embodied in Apparatus Model C-1000 and is a complete projection booth containing twin micro-projectors. Use of two first surface reflectors permit projection of two slides at full 100 diameter magnification. The images, each about 20 inches square, appear on inspection table screen at a convenient approximate waist height immediately in back of the focus controls of the projectors so that fine adjustments in focus can be made. The holders for the slides are movable so that they can be shifted to bring any portion of the film into

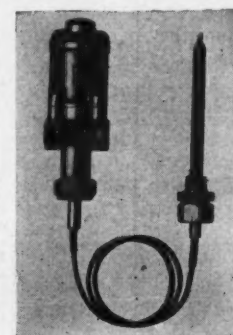
any position on the screen. The entire apparatus is closed in a compact cabinet with projecting hood, curtains to aid visibility when making tests. The cabinet is 9 1/2" high, 42" wide, 28" deep. Literature on this "Faxfilm" Comparator Projector," on request.

REX D. McDILL, Dept. CP, 5107 Mayfield Rd., Cleveland, Ohio.

When Inquiring specify CP A2154 — see information request blank, pgs. 2-3

### Compact Tank & Process Control

*Offers a full-balanced valve that is one of the smallest of its type available*



**Uses** — For sterilizers, tanks, instant heaters or equipment requiring close accurate control of liquid temperatures.

**Features** — This control offers a full balanced valve that is one of the smallest, most compact units of its type available. Easily adjusted on the job.

**Description** — Operating at steam pressure of 5-15 pounds, when adjusted the control maintains that adjustment because it is fully balanced. It is tested up to 248° degrees and will function at

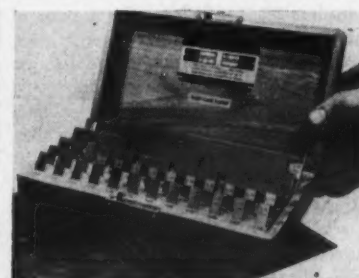
higher temperatures when required. Outside temperatures have no effect on the valve, which is controlled exclusively by a bulb immersed in air or in the liquid. This No. 1 series is available in standard ranges and is completely nickel-plated, including capillary and bulb. Adjustment is made at the factory for its particular application. Temperatures are accurately maintained with 1/2° plus or minus with an adjustable range of 40°.

STERLING, INC., Dept. CP, 3738 No. Holton St., Milwaukee 12, Wis.

When Inquiring specify CP A2155 — see information request blank, pgs. 2-3

### 40 Piece Metric Gauge Block Set

*In working and inspection grades accurate to plus or minus .0002 and .0001 respectively*



**Uses** — This recently introduced series of gauge blocks is designed for manufacturing working in the Metric system.

**Features** — Plants working in the Metric system either in full production or special contracts, this series of precision gauge blocks will save time and insure required accuracy. The standard policy of converting English measurement to Metric can be eliminated.

METRIC GAUGE BLOCKS eliminate converting English measurement to Metric.

time and insure required accuracy. The standard policy of converting English measurement to Metric can be eliminated.

CHEMICAL PREVIEW

# Sheldon



## LABORATORY EQUIPMENT

Many factors enter into efficient planning and installation of a laboratory. Because of this the planning of a laboratory is not merely a matter of selecting equipment, but a task that demands a high and specialized type of creative understanding, skill, and long, practical experience.

What Sheldon Planning Engineers have accomplished for others is a dependable index of what can be done for you. Acquaint us with your laboratory needs and your planning problems. . . . Sheldon Planning Engineers will be happy to work with you.

E. H. SHELDON & COMPANY  
MUSKEGON, MICHIGAN

When inquiring specify CP A2153 . . . see information request blank, pgs. 2-3



## INSTRUMENTS

ated entirely with the wide range of measuring combinations possible. Calibrated in the Metric system, the blocks can also be used to make up English system combinations.

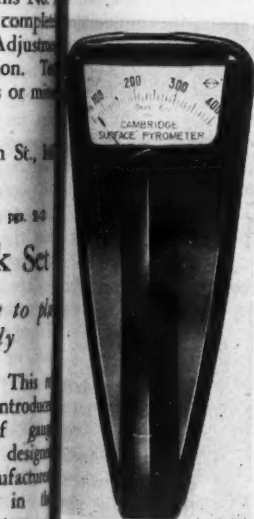
**Description** — The blocks are offered in two grades that correspond in accuracy with English system. Inspection quality accurate within plus or minus .0001 MM and working quality accurate within plus or minus .0002 MM. The set consists of 38 blocks plus two wear blocks (of tungsten carbide in the inspection grade) and is capable of producing over 100,000 combinations ranging from 1.01 MM to 100 MM in increments of .01 MM. A special .005 MM block in the set makes possible special combinations for closer tolerances where needed. Manufactured from high carbon chrome steel, the blocks exceed a hardness of 65 Rockwell C. A special aging process using alternate heating and freezing to 120 degrees below zero gives the blocks unusual stability, while exceptional wearing quality is possible because of extremely fine finish of surface, less than four-tenths of one micro inch RMS in the inspection grade. The 40 piece Metric set is furnished in an attractive and compact cloth lined walnut case, where the blocks stand up on end for convenient handling. Precision gauge instruments to greatly increase the application of gauge blocks are also available in the Metric system. Illustrated literature on the set or instruments on request.

CONTINENTAL MACHINES, INC., Dept. CP, 1301 Washington Ave., South, Minneapolis, Minn.

When inquiring specify CP A2156 — see information request blank, pgs. 2-3

## Surface Pyrometer Has Corrosion Free Plastic Case, Lucite Window

*Cleaning made easy and electrical insulation problems simplified; better scale illumination*



Plastic case, lucite window

has better illumination and accurate temperature reading is greatly facilitated, particularly in half-light. A needle model is also available for measuring sub-surface temperatures. Complete information concerning these instruments is available upon request.

CAMBRIDGE INSTRUMENT CO., Dept. CP, Grand Central Terminal, New York 17, N. Y.

When inquiring specify CP A2157 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

**Uses** — For measuring the temperature of moving or still, flat or curved surfaces, in rubber, plastic, paper and metal working industries.

**Features** — In this redesigned model the metal case formerly used has been replaced with one of plastic, enhancing appearance, making for easier cleaning and resistance to corrosion. While the final weight of the instrument remains practically the same, the plastic design results in better balance and "feel." The redesign also simplifies electrical insulation problems and makes possible many mechanical improvements.

**Description** — The usual glass pane is replaced by an unbreakable lucite window and since this window extends over the top of the instrument the scale

## For Convenience...

in the continuous indication of specific gravity

Intermittent sampling to determine specific gravity in a continuous process is often inadequate, time consuming and unsatisfactory. An instrument that permits continuous indication offers improved control as undesirable deviations can be noticed as soon as they occur. The SK Specific Gravity Indicator is a simple, dependable device which provides continuous indication of specific gravity by means of a standard hydrometer.

The SK Specific Gravity Indicator is adapted from the SK Universal Rotameter with which most parts are interchangeable. It is readily installed in new or existing pipe lines and may be located beside a convenient pipe line or front- or back-mounted on a centrally located panel. Although normally supplied in cast iron,

bronze or stainless steel, it can be obtained in any alloy on special order.

Both inside and outside cleaning is easily accomplished without disturbing pipe connections. Packing glands are adjusted by cap screws, there are no large threads to corrode and freeze.

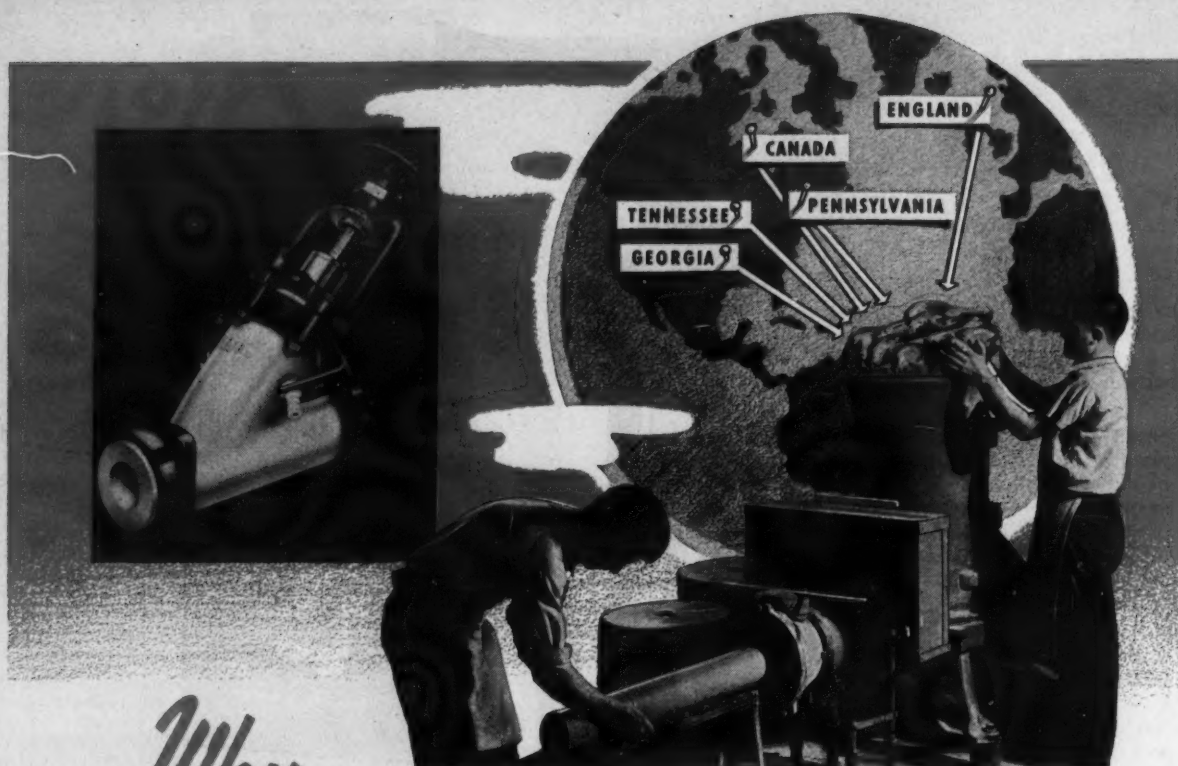
Write for full details and price.

## SCHUTTE & KOERTING CO.

1173 THOMPSON STREET • PHILADELPHIA 22, PA.

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS • BURNER TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS

When inquiring specify CP A2158 . . . see information request blank, pgs. 2-3



## Why... You can be sure of higher CORROSION-RESISTANCE, positive NON-ABSORPTION with LAPP CHEMICAL PORCELAIN

**1 LAPP SPECIFIED CLAYS  
ARE NOT FOUND IN  
"BACKDOOR" CLAY PITS**

Whether a ceramic successfully solves your processing problems may be decided by the qualities of the body itself. LAPP Chemical Porcelain is different from ordinary ceramics because it offers all the "natural" advantages of ceramics *developed to their highest degree*. Complete corrosion resistance to all acids (except HF), positive non-absorption, added mechanical strength and purity are *plus* advantages of LAPP Chemical Porcelain. These are made possible by its *extra* dense, homogeneous, *thoroughly* vitrified body. Producing that body depends, first of all, on the kind and quality of clay used. That's why LAPP has gone as far as necessary—even to England—to obtain carefully selected clays that meet rigid LAPP specifications for plasticity, impurity content, acidity and other important properties. And every carload is scienti-

fically inspected at the plant before the clay goes into production.

If you've had trouble with ceramics on a problem ceramics should solve—it will pay you to experience the difference in LAPP Chemical Porcelain. LAPP Insulator Co., Inc., Chemical Porcelain Division, LeRoy, New York.

LABORATORY QUALITY IN PLANT PRODUCTION WITH

# Lapp

*Chemical Porcelain*

ARMY NAVY

VALVES • PIPE AND FITTINGS • RASCHIG RINGS • TOWERS • KETTLES • FILTERS • SPECIAL SHAPES

—When inquiring specify CP A2159 . . . see information request blank, pgs. 2-3—

## INSTRUMENTS

### High Vacuum Recording Gauge

Unit consists of modified high vacuum gauge calibrated in microns, combined with galvanometer type recorder



GAUGE for pressures to 5000 m.

**Uses** — For producing a continuous, reliable, record of pressure conditions within a vacuum system, between the limits of one and five thousand microns absolute pressure.

**Features** — The recording unit may be located at any distance point but the instrument proper is preferably located close to sampling point, thus including indicating gauge at either sampling point or at any desired location.

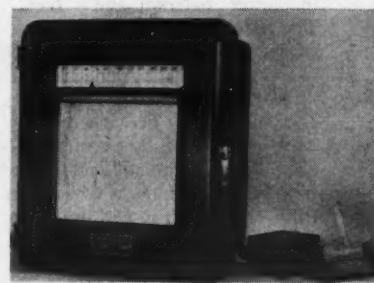
**Description** — The unit consists of a modified high vacuum gauge, calibrated in microns, combined with a galvanometer type recording unit. The gauge is mechanically tilted from the horizontal, (normal) position to the vertical (reading) position by an electric motor. The height of the measuring capillary and hence the vacuum in the system is electrically determined, this reading being automatically transferred to the recorder. A similar instrument, with one recording unit and as many as four indicating instruments is available to record pressure in sequence on a strip chart. These gauges are "McLeod" type instruments similar to the maker's portable indicating gauges and are for the first time made available in combination with a recording unit. They have built-in chemical trap which excludes gases and all condensable vapors, including water, oils, and alcohol.

F. J. STOKES MACHINE CO., Dept. CP, Philadelphia 20, Pa.

When inquiring specify CP A2160 — see information request blank, pgs. 2-3

### Recording Instrument Thermal Gauge Has Coated Filaments

Choice of two units: 0-500 microns and a two range recorder 0-500 & 0-0.4 microns



Gauge with chart recorder.

**Uses** — The type MR instrument, illustrated, has a range of 0-500 microns. (Another instrument, type S for ultra vacuum contains two ranges — 0-500 microns for pressures above 1 micron and using the same thermal gauge as the MR for that range and

an industrial type gauge for range 0-0.4 microns. Accurate readings down to .001 micron.)

**Features** — The "Televac" No. 500 thermal gauge has

CHEMICAL PREVIEW



## INSTRUMENTS

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VIEW

pecially treated elements, which include coated filaments to prevent "off-calibration," periods due to water, oil vapor or other contaminating vapors. Increased sensitivity is gained through use of two filaments in both standard and variable tubes of the vacuum gauge. All gauges are interchangeable without recalibration. Duplicate readings in terms of absolute pressure in microns. The "S" instrument has a safety circuit that makes it impossible to turn on the ionization gauge until a vacuum of 1 micron has been reached.

**Description** — The MR instrument is supplied with a special Leeds & Northrup Micromax strip chart recorder calibrated directly in microns. The average life of the ionization gauge is 3000 hours. Literature on request.

**PRECISION SCIENTIFIC CO.,** Dept. CP, 1750 North Springfield Ave., Chicago 47, Ill.

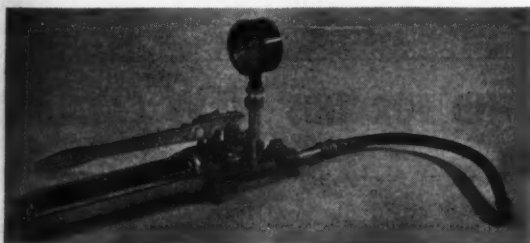
When inquiring specify CP A2161 — see information request blank, pgs. 2-3

### Multi-Purpose Gauge Tester

*Combination unit can be used for bench or field testing; on bench used with test gauges or dead weight attachment*

**Uses** — For portable, bench comparator and dead weight checking of pressure instruments, setting relief valves, pressure reducing valves; hydrostatic testing.

**Features** — A triple purpose test unit. Twin-seal check valves. Even with grit and scale from repairing gauges (months of continuous use) the check valves hold tight without any seepage for a day or longer if necessary, at any pressure to 10,000 psi.



PRESSURE GAUGE TESTER

**Description** — Illustration seen here shows unit arranged for portable testing. The unit operates with oil, water, or any liquid not destructive to synthetic rubber. In the event that a liquid is used that deteriorates synthetic rubber it is simple and inexpensive to replace these synthetic rubber parts. The twin seal principle employed in the check valve means a metal to metal seat, the same as in conventional cone poppet types, plus a resilient ring seal on the poppet. When the valve is closed, the shape of the poppet leaves a space into which the line pressure squeezes the resilient ring. The higher the pressure the tighter the seal and by proper relation of poppet and body angles a perfect seal is attained at pressures up to 10,000 psi. Variations of machining and grit in the piping system will not prevent the resilient ring from making a tight seal without seepage — proven with particle sizes to .010. The resilient ring is free to move on the poppet cone, the ring not being confined or clamped. Sudden flow surge or sticking of the poppet will not cause cutting, extrusion, or other damage to the ring, since it can move up the cone to an enlargement in the body where the ring is free and does not seal with the body. Illustrated bulletin is available on request.

**MANSFIELD & GREEN, Dept. CP, 4601 Euclid Ave., Cleveland 3, Ohio.**

When inquiring specify CP A2162 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

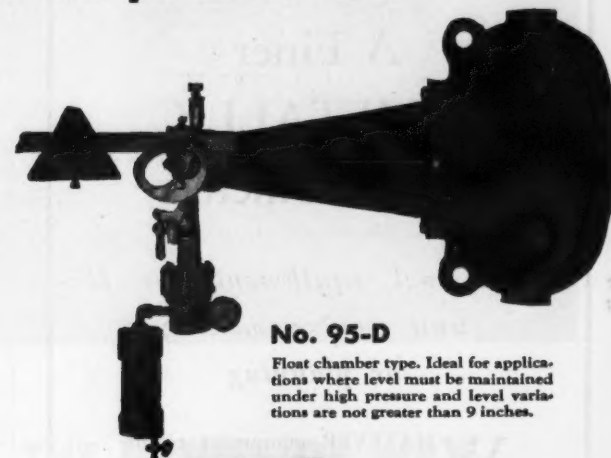
# This Allied Line IS A WINNER!

## There is a Masoneilan Level Controller to meet your requirements



No. 419

Shaft type for mounting on small nozzles. Adapted for use in fractionating columns, absorption units, cracking units, similar applications.



No. 95-D

Float chamber type. Ideal for applications where level must be maintained under high pressure and level variations are not greater than 9 inches.

**N**O MATTER what your level control requirements, there's a Masoneilan Level Controller that will meet your particular installation needs ... exactly.

Plant-and-field-proved in many types of industries, these level controllers will handle light and heavy liquids. They meet the exacting requirements of interface service, too.

**Ball Float Types** have the Super-Power pilot which is sensitive to the slightest float movement immediately varying the air pressure to control valve. The flexibility of cam adjustment covers the entire range from the fast action necessary to maintain constant levels to broad throttling action.

**Displacement Types** have a controller embodying a control assembly of special design, proportional band and specific gravity adjustments; new refinements in knife edge bearings and torque-tube assembly.

Investigate this Masoneilan allied line of level controllers. Write for complete information, today. Our engineers are available for consultation on your problems.



**MASON-NEILAN REGULATOR CO.**

1203 ADAMS STREET, BOSTON 24, MASS., U. S. A.

New York Chicago St. Louis Philadelphia Houston  
Pittsburgh Tulsa Los Angeles Cleveland Atlanta San Francisco  
Mason Regulator Co. of Canada, Ltd., Montreal, Canada



12,000 Series

Displacement type for all level control applications including interface service and remote level indication. Available in standard ranges from 14 inches to 15 feet. In addition to model 12,600 shown, types are available with internal displacer for top or side of vessel mounting.

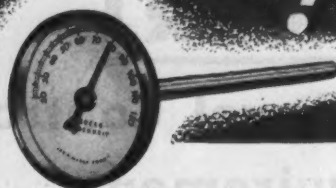


No. 417

Flange type for manhole mounting directly on vessel. Adapted to same uses as regular float chamber type.

When inquiring specify CP A2163 . . . see information request blank, pgs. 2-3

# READY!



## A Finer Bi-METALLIC Thermometer

as original equipment for the  
unit you're making  
or planning

**W**HATEVER equipment requiring temperature indication you are making now, or planning for the postwar market, our engineering department has a real message for you. We have developed a new bi-metallic dial thermometer — accurate, attractive, sturdy — yet available in quantities at a cost that you can justify in the most competitive market.

The illustration shows a typical thermometer with conventional scale, but we can work out special dials, ranges and forms that will "dress up" your product and suit its design. Temperature indication — particularly in this accurate, handsome form — is a sales-winning feature that adds little to your cost.

The Marsh line includes a wide range of equipment for process industries — dial thermometers in rigid stem and remote reading types, pressure gauges in practically all types and ranges, packless valves, traps, vents and other heating specialties.

Jas. P. Marsh Corp.

Southport Ave., Chicago 14, Illinois

# A MARSH Instrument

When inquiring specify CP A2164 — see information request blank, pgs. 2-3

## INSTRUMENTS

### Power Driven Stiffness Gauge for Materials to 1/8 In. Thickness

Tests plastic, cardboard, metallic sheet, wire;  
plus into 115 v., 60 c., circuit



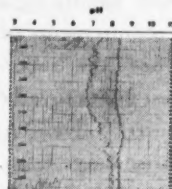
View shows dial,  
clamp, loading rolls,  
weight, etc.

Uses — For determining standard measurements of the stiffness and resilient qualities of flexible materials up to 1/8" thickness, such as laminated plastic, cardboard, light metallic sheet and wire.

Features — The instrument possesses great sensitivity even to the extent of detecting and indicating changes in the specimen structure as they occur under load. This reveals the material's elastic or spring-like qualities which can be given a numerical valuation by simple calculation. Portable, weighs only 15 lbs., plugs into 115 v., 60 c., circuit. Measures both initial and normal stiffness characteristics without the addition of attachments.

Description — The instrument is leveled by setting the driving disc to zero on the scale then adjusting the tips of the front stand rods so the pendulum lines up with zero. The tip of the stand rod should remain screwed on tight. The weighing system is of the pendulum type. The specimen clamp is mounted on the pendulum with the lower face of the jaws exactly on the center of rotation, insuring

## HIGH ACCURACY pH EQUIPMENT



### Single and Multi-Point Recorders

Cambridge design insures accuracy and trouble-free performances to a degree hitherto unknown. The Multi-Point Recorder provides on one chart simultaneous records of pH at separate sampling points in the plant. Electrodes (glass) are housed in non-clog continuous-flow type chambers and may be installed wherever wanted. Cambridge is line operated.

CAMBRIDGE pH METERS (Laboratory and Industrial models) provide continuous null indication. Sensitive to .005 pH, stable, rugged and portable. Operate from any convenient 110 volt AC outlet.

#### CAMBRIDGE BUILDS:

- Recording Gas Analyzers
- Fabric Permeameters
- Surface, Needle and Mold Pyrometers
- Moisture Indicators and Recorders
- Instruments for Special Applications

Send for Bulletins

### CAMBRIDGE INSTRUMENT CO., INC.

3732 Grand Central Terminal

New York 17, N. Y.

When inquiring specify CP A2165 — see information request blank, pgs. 2-3

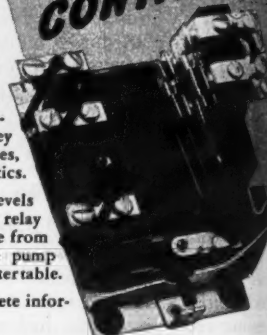


● B/W Controls were created in 1933, for positive, dependable liquid level control.

B/W Controls have no floats — no vacuum tubes — no moving parts in the liquid. They are unaffected by pressures, temperatures, acids or caustics.

They control variations in levels from 1/4" upward, and the relay may be located any distance from the electrodes. Invaluable pump protection against falling water table.

CATALOG 145 gives complete information. Write for it.

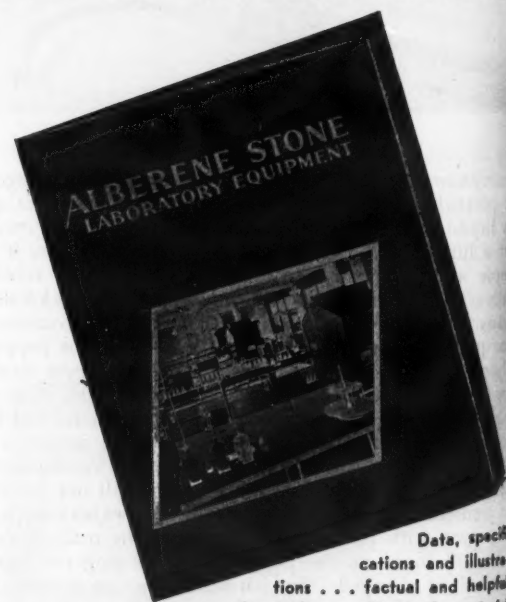


## B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

When inquiring specify CP A2166 — see information request blank, pgs. 2-3

## SEND FOR THIS NEW CATALOG!



Data, specifications and illustrations . . . factual and helpful . . . about Alberene Stone, the material that outlasts the building.

**ALBERENE STONE CORP. OF VIRGINIA**  
419 4th Ave., New York

When inquiring specify CP A2167 — see information request blank, pgs. 2-3



## INSTRUMENTS

constant test length of the specimen, which feature is essential to accurate and comparable results. Both jaws of the clamp holder are adjustable so that the test specimen can be exactly centered regardless of thickness. The load is applied to the lower end of the specimen by rollers attached to the power driven disc directly in back of the pendulum and the resulting torque tends to deviate the pendulum from the vertical. The end point of the test is indicated by the alignment of the mark on the pendulum with the one on the loading disc which points to the reading on the hundred graduation sine scale. The physical values of the bending load per dial graduation depends on the range weight used, the latter being marked with a full scale reading. A set of calibrated weights are furnished with the instrument — 500, 1000, 2000 stiffness units. Weights of 3000 and 5000 are also available. For measuring flexural strength of very thin and flexible materials below 10 units stiffness an attachment is provided that eliminates mechanical friction and inertia. Triple cut specimen shear available with this instrument cuts specimens to size  $1\frac{1}{2} \times 2\frac{3}{4}$  inches. It blanks out specimens up to 20 pt. in thickness. It eliminates possible variations in results caused by off-size specimens cut with single shears. Literature and complete information available on request.

TABER INSTRUMENT CORP., Dept. CP, 111 Goundry St., North Tonawanda, N. Y.

When inquiring specify CP A2168 — see information request blank, pgs. 2-3

## Rotameter Tube Dispenses With Center Guide Wire

*Made of boro-silicate glass; straight glass ribs inside tube guide float*

**Uses** — This recently perfected tube, made of boro-silicate glass greatly simplifies rotameter construction because it eliminates the center guide wire previously used to stabilize the float.

**Features** — It solves the problem of how to guide the float when very corrosive chemicals, such as hydrochloric acid, are being measured. The new tube can be readily adapted to existing rotameters.

**Description** — The tube has three straight glass ribs running up the inside to guide the rotameter float throughout its travel. A cross section of the tube is shown in the accompanying sketch. There is only a hair-line contact between the float and each raised rib. A guided float improves the accuracy of the rotameter by centering the float and it also prevents tube breakage. It also permits float shapes that are not stable without guides, thus making possible this maker's "Stabl-Vis" float for measuring fluids of varying viscosity with high accuracy. Detailed information on request concerning the "Beaded Guide" tube.

"Bead-Guide" Rotameter Tube

FISCHER & PORTER CO., Dept. CP, 934 County Line Rd., Hatboro, Pa.

When inquiring specify CP A2169 — see information request blank, pgs. 2-3



## Birthplace OF THE DRUMS OF WAR

### Bowser XACTO Meters Speed Barrel-filling At Shell's Wood River Refinery

Important factor in the vital task of supplying our machines of war with gasoline and oil is Shell's Wood River Refinery . . . scene of production triumphs and the source of advanced refinery techniques.

Making lubricants and high octane fuel is an exacting job . . . demanding absolute control and clocklike precision.

And that's a perfect setting for the batteries of Bowser Meters that fill the barrels and drums of Shell's compounding and shipping department.

For, here, the range of requirements call for all the features for which Bowser Barreling Meters are famous. These include: extreme accuracy, unique temperature compensation for correcting measurement, a simple and effective predetermining mechanism—plus the speed and efficiency that is helping to keep Shell's "drums of war" rolling.

\* \* \*

In the chemical industry, where there is no margin for error, Bowser Proportioners, Meters and other equipment are considered indispensable. Users are assured of practically absolute accuracy, uniformity of product, correct maintenance of records, speedy operation and economy of plant space and investment.

Why not let a Bowser Liquid Control Specialist analyze your job with you—without cost or obligation. Write BOWSER, INC., Dept. 14-G, Fort Wayne 2, Indiana.



**BOWSER**  
SINCE 1885

Not only has Bowser war production earned the Army-Navy E . . . Bowser equipment has helped earn it for scores of other companies.

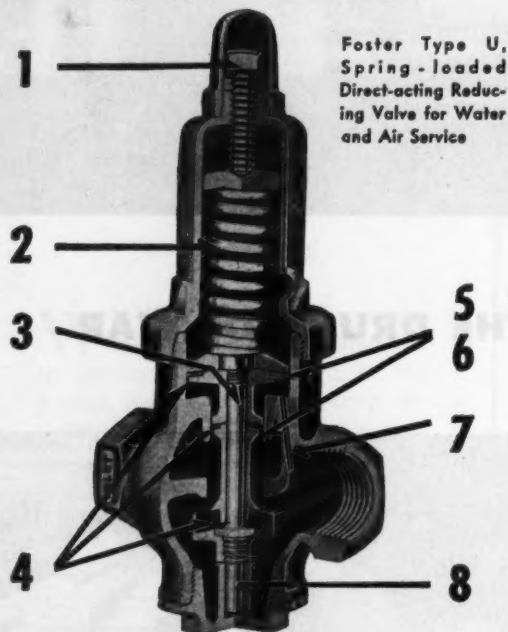
THE NAME THAT MEANS EXACT CONTROL OF LIQUIDS

When inquiring specify CP A2170 . . . see information request blank, pgs. 2-3

# FOSTER REGULATION ENGINEERING

**Saves  
Maintenance Time**

*for example,* In this direct-acting valve for water or air services, the Foster Type U gives you regulation without complication.



Foster Type U.  
Spring - loaded  
Direct-acting Reduc-  
ing Valve for Water  
and Air Service

- |  |  |
|--|--|
| 1 Easily set under pressure  | 5 Leathers impregnated with special lubricant. |
| 2 Springs "flexible" cadmium plated  | 6 Moving seals, leather-to-bronze              |
| 3 Stems, special high-tensile bronze to minimize stretch from pressure shock | 7 Ports straight drilled, self-cleaning        |
| 4 Soft disc and leather sealing cups renewable                               | 8 Bronze guides                                |

Foster Regulation Engineering, built into each valve, is your assurance of years of accurate, trouble free operation.

★ BUY MORE BONDS ★

**FOSTER ENGINEERING**  
Company

124 MONROE STREET • NEWARK 1, N. J.

THERE IS NOW A FOSTER VALVE FOR EVERY SERVICE

7-FE-6

## INSTRUMENTS

### Oscillograph Records Phenomena Lasting Millionth of a Second

*Records single electrical transients with respect to time or two phenomena with respect to each other*

**Uses** — For electric power companies, research laboratories, etc. this new, self-contained industrial electronic oscillograph records the characteristics of electrical phenomena lasting as little as a fraction of a millionth of a second. It records single, electrical transients with respect to time, or two electrical phenomena with respect to each other, such as voltage versus current, in the form of diagrams produced by two pairs of electrostatic deflecting plates disposed at right angles to each other.

**Description** — The new streamlined unit consists of the oscillograph proper in front of the cabinet and the cabinet proper which houses all energizing and control circuits. Energizing terminals are enclosed except one bushing connected to the source of synchronizing impulse. Concentrating coils, beam current meter, and leak valve, control the intensity and size of the trace on the film. Detecting coils move the zero position of the beam so as to use the whole area of the exposed film for the record. The cathode of the tube is energized from a 50 kv d-c rectifier with a control to correct for line voltage variation. The beam is normally blocked by a target. An impulse synchronized with the phenomena will trip the relay which bends the beam around the target so that it will strike the fluorescent screen or film below. In addition to the fluorescent screen for direct observation, the instrument contains a stationary

## NOW... "ROTAMATIC" FLOW CONTROL

**T**HE "Rotamatic" brings the exclusive advantages of the rotameter to automatic flow rate control; namely, (1) low pressure loss, (2) linear calibration scale and (3) wide flow range.

The "Rotamatic" is a rotameter connected to a pneumatic control instrument for remotely positioning a diaphragm motor valve in the flow line by air pressure. Any deviation from the exact flow rate that you desire causes a repositioning of the air operated valve and correction of the flow rate to the proper amount. The connection of the rotameter to the pneumatic instrument may be made by electrical or magnetic transmission. In both designs, completely explosion-proof instruments may be furnished for hazardous locations or inflammable fluids.

The "Rotamatic" combines flow rate chart record, automatic flow rate control and flow totalization. It measures liquids or gases equally well. It is admirably suited to continuous process control. It reduces labor costs, saves raw materials and increases final product yield — in short, it pays back its cost in a remarkably short period in most installations. Write for Bulletin 50-A which gives the complete and interesting details.

**FISCHER & PORTER CO.**  
4507 COUNTY LINE ROAD — HATBORO, PA.

When inquiring specify CP A2172 — see information request blank, pgs. 2-3

## TEMCO ELECTRIC FURNACE

MODEL GRF

**FOR HEAT TREATING  
SMALL TOOLS AND  
PARTS, TESTING AND  
LABORATORY WORK.**

**FAST HEATING**—1500° F. in 30 min. Temperature controlled by four point switch set for 500°, 1000°, 1500° and 1850° F. These settings easily changed by adjusting bands on rheostat coils. Dependable indicating pyrometer is calibrated in both Fahrenheit and Centigrade scales.

**UNIFORM TEMPERATURE**—Heating element of high quality nickel-chromium alloy forms a continuous coil and is embedded in sides, top and bottom of muffle chamber. This construction assures uniform temperature and protects element from damage and oxidation. Complete muffle unit is replaceable.

**PORTABLE**—Body is aluminum. Total weight, 17 lbs. Muffle chamber, 4" x 3 3/4" x 3 3/4"; furnace overall, 9 1/4" x 13 1/2" x 10 1/2". Supplied with attachment cord. Operates on A.C. and D.C., 115 or 230 V. (be sure to specify voltage). Max. power consumption 1200 watts. Model GRF complete, 115 V. \$42.50; 230 V. \$47.50.

See your supply house or write

THERMO ELECTRIC MFG. CO., 476 W. Locust St., Dubuque, Ia.

When inquiring specify CP A2173 — see information request blank, pgs. 2-3



**NEW "Meterol" Valve** precisely meters fuel oil of any grade or viscosity to provide efficient oil burning on boilers, furnaces, ovens, kilns, dryers, etc. Chronometer-type dial, accurately calibrated over 120 degs., permits easy duplication of settings. 16 inlet-outlet flow directions can be had with one valve due to revolutionary split-body design principle. Non-clogging V-port for constant burner flame; tight shut-off with stuffing box free from full line pressure at any flow position. If you're using oil-fired industrial equipment, write today for new Bulletin T-51.

**atc** 25th YEAR OF INDUSTRIAL SERVICE  
AUTOMATIC TEMPERATURE CONTROL CO., Inc.  
34 E. Logan St. • Philadelphia 44, Pa.

When inquiring specify CP A2174 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

When inquiring specify CP A2171 — see information request blank, pgs. 2-3



## INSTRUMENTS

film holder taking a standard film for recording electrical phenomena lasting 1/1000 of a second less, and may be operated with a rotating film drum for phenomena lasting from 1/1000 to 1/10 of a second. A photo-electric control which makes it possible to take an oscillogram in one revolution of the drum, regardless of speed, eliminates the possibility of superimposed waves.

WESTINGHOUSE ELEC. & MFG. CO., Dept. CP, Box 68, Pittsburgh 30, Pa.

When inquiring specify CP A2175 — see information request blank, pgs. 2-3

### Portable Hardness Test Hammer

*Provides index of workability satisfactory for many instances; eliminates taking specimen to testing machine*



**Uses** — This portable testing hammer makes possible the taking of hardness test right where the material is located providing sufficiently accurate test in regard to workability.

**Features** — Repeated tests can be made without readjusting the hammer. Tests quickly performed by inexperienced workers who can quickly learn how to operate this hammer.

**Description** — If material of a certain degree of hardness is to be selected, it is only necessary to see whether the diameter of the impression made corresponds to the desired degree of hardness. If the impression is smaller or larger, the specimen is either too hard or too soft, which can be checked with microscope and chart supplied. The hammer consists of a cylindrical housing and easy moving piston; the housing is closed on one end with an inside thread cover, and on the other end with an open bushing. Between the cover and

Turning cover adjusts power stroke of test hammer.

the piston, a strong spring is located which presses the piston against the bushing. The tension of the spring can be adjusted by turning the cover, if the hammer is to be set a certain power of stroke. The piston is coupled with a striking piston, which projects through the bore of the bushing guided by an airtight fitting ring in the cylinder and carrying a steel ball on the end. Resting the hammer with the ball against the material to be tested and pressing on the operating end, the striking piston and the piston in the housing moves inward and presses against the spring between the piston and the cover. At a certain point, in this movement, the coupling between the piston and the striking bolt is released, so that the piston, under pressure of the spring, moves against the inner end of the striking bolt and the ball striking against the material to be tested. After the hammer is released, the striking bolt or piston is brought back to its former position by a spring in the cylinder. The cushion of compressed air before guiding ring causes a slow backward movement of the ball, and prevents spoiling the impression made.

STEEL CITY TESTING LABORATORY, Dept. CP, 8843 Livernois Ave., Detroit 4, Mich.

When inquiring specify CP A2176 — see information request blank, pgs. 2-3

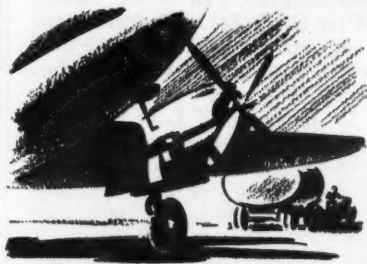
For far reaching advancements  
in instrumentation...  
consult **BECKMAN!**



A better method of controlling electronic circuits. When Radar and other directional and depth-finding devices became of critical importance, there was a problem of accurately controlling the complex electronic circuits used. Another Beckman development—the Beckman Helipot, a new type potentiometer that combines both wide range and high sensitivity in one extremely compact unit—proved to be the solution and is now being supplied in large quantities to fill top-priority military needs.

**T**HE BECKMAN research staff has had years of experience in developing new, better, more accurate methods of controlling modern production processes through advanced instrumentation. Perhaps this widespread experience in solving instrumentation and control problems in many types of industry can be of help on *your* problem. Why not contact us? No obligation, of course.

#### SOME OF THE BECKMAN DEVELOPMENTS INCLUDE...



A better method of controlling aviation gasoline refining. When aviation gasoline became number one on the war production "musts", ways had to be devised to speed up and simplify control of processes in the giant new 100 octane refineries. Working in cooperation with leading petroleum scientists, Beckman engineers produced in quantity a new routine Infrared Spectrophotometer which today is the key control instrument in virtually every one of the modern high octane refineries. This instrument has cut the time required for the analysis of complex hydrocarbon mixtures from many hours to only a few minutes, greatly stepping up the efficiency and economy of war-paced refinery processes.



A better method of controlling Toluene production processes. When Toluene (basic for TNT) became another war essential, new processes were developed to produce this product on a large scale from petroleum. Again there was a critical control problem, and again the Beckman organization provided the answer—this time with the Beckman Quartz Spectrophotometer.



A better method of controlling Penicillin production. In developing a new secret process for the large-scale production of Penicillin, chemical engineers found that accurate pH control was essential for optimum yield. Knowing the pioneering accomplishments of the Beckman staff in advanced instrumentation, they brought their problem to the Beckman organization. Result—Beckman engineers, from their extensive background in pH, developed a special type of flow chamber that is now playing a major role in today's stepped-up Penicillin production.

THESE ARE ONLY TYPICAL OF MANY BECKMAN DEVELOPMENTS in instrumentation and control methods for chemical... mining... food... petroleum... vitamin... paper and other production processes. This vast fund of "know-how" for applying science to the control of production processes is at your service. Write, outlining your problem.

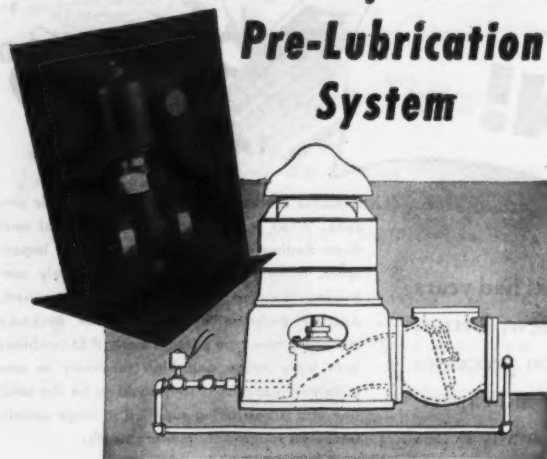


**BECKMAN INSTRUMENTS**  
NATIONAL TECHNICAL LABORATORIES • SOUTH PASADENA 11, CAL.

**INSTRUMENTS CONTROL MODERN INDUSTRIES**

When inquiring specify CP A2177... see information request blank, pgs. 2-3

## THE ASCO SOLENOID VALVE ... in a Closely-Timed Pre-Lubrication System



Some close timing is involved in starting this powerful Worthington Turbine Pump... and an ASCO Solenoid Valve plays an important part. Through timing relays, the initial closing of the starter switch operates only the valve to flood the rubber column bearings with water. When they are properly lubricated, the relay de-energizes the solenoid valve causing it to close, at the same time closing the Motor Starter Switch.

Note that this ASCO Solenoid Valve is first energized for the purpose of opening it to allow the flow of a liquid. Then it is de-energized, closing it to cut off the flow. Such an application of the Solenoid Valve has countless uses in industry both in connection with the operation of machines and on process lines carrying liquids or gases.

If you need to automatically and remotely control the flow of liquid or gas in a machine or process line, check up on the usefulness of the solenoid valve. Write us in detail for our recommendations. The ASCO Line of Solenoid Valves is complete. Special types are designed when necessary.

★ ★ ★



We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays.

### Automatic Switch Co.

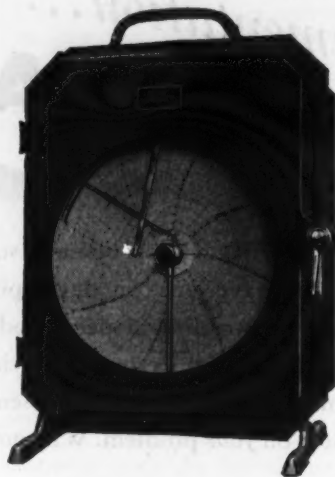
47 EAST 11th STREET, NEW YORK 3, N. Y.  
7-AS-1

When inquiring specify CP A2178 — see information request blank, pgs. 2-3

## INSTRUMENTS

### Portable Recording Thermometers

Available with numerous standard chart ranges; weighs 18 lbs.; for chemical processing and air conditioning applications



PORTABLE RECORDER

**Description** — This self-contained unit is the maker's standard recorder except for its special temperature measuring system and feet and carrying handle. These thermometers are available with numerous standard chart ranges within the following temperature limits: mercury actuated instant, minus 38° to plus 200° F. or equivalent C.; vapor actuated 0° to plus 300° F. or equivalent C. The instrument weighs 18 lbs., and measures 20 1/4" high, 13 3/4" wide and 6 3/4" deep. Chart driving mechanism can be supplied with periods of revolution to accommodate all regular recorder charts.

TAYLOR INSTRUMENT COMPANIES, Dept. CP, Box 110, Rochester 1, N. Y.

When inquiring specify CP A2179 — see information request blank, pgs. 2-3

### Diaphragm Motor with Outboard Lever Connection to Valve

Permits mounting of the motor directly over valve body rather than eccentrically



Motor for control instruments

when used with a pneumatic valve positioner, is powerful enough to operate valves up to eight inches in size. The

**Uses** — Originally designed for use in boiler rooms, enameling and japanning ovens, engine rooms, refrigerating rooms, brewery cellars, it has many applications in chemical processing and air conditioning fields.

**Features** — To assure accuracy, the pre-formed capillary bulb which is attached to the back of the case is insulated in such a way that the recorded temperature is not effected by the temperature of the case itself.



## long stem

### KETTLE and TANK THERMOMETERS for varnish, oils, milk, jams, food, etc.

These red-reading mercury thermometers have metal cases and flat glass fronts. Temperature ranges from 30° up to 750° F. or equivalent centigrade. They are permanently accurate and will withstand all normal hazards of industrial service.

Other items in the H-B line include thermostats, relays, thermoregulators, hydrometers and many other types of thermometers. H-B Instrument Company, 2510 No. Broad St., Philadelphia 32, Pa.

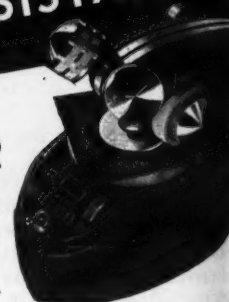
STEM  
LENGTHS  
12"  
24"  
30"  
36"  
48"  
60"  
72"

THERMOMETERS • THERMOSTATS • RELAYS  
THERMO-REGULATORS • HYDROMETERS



When inquiring specify CP A2180 — see information request blank, pgs. 2-3

A fast, practical, scientific  
**PRE-TEST FOR  
WEAR RESISTANCE**



The **TABER ABRASER**  
gives "Advance Data"  
on the Wearability of

PAINTS • LACQUER • PLATING  
LEATHER • RUBBER • PAPER, ETC.

In checking the wearability of your own products as compared with competitors', as well as in research on new developments—the Taber Abraser gives you an accurate rating of resistance to surface abrasion quickly, simply. Eliminates slow, costly performance tests. Used by hundreds of manufacturers and research laboratories. . . . Full particulars on the Taber wear testing procedure will be sent on request. No obligation.

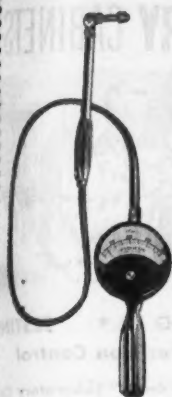
**TABER INSTRUMENT CORPORATION**  
111CP Goundry Street North Tonawanda, N. Y.  
**The Taber Test Proves What Wears Best!**

When inquiring specify CP A2181 — see information request blank, pgs. 2-3



## INSTRUMENTS

**For easier  
temperature  
measurements—**



**ALNOR PYROCON**

**with flexible arm**

★ This contact pyrometer for surface temperature measurements is available with either flexible or rigid arm, and a choice of eleven types of thermocouples. The Pyrocon with flexible arm permits easy temperature readings in many locations otherwise inaccessible. The hand-held indicator is balanced for convenient use, and is a rugged, heavy duty instrument for reliable service under industrial plant conditions. Temperatures may be measured in liquids, molten metals, oils, bulk materials, and of surfaces, whether flat or curved, stationary or moving. Several standard ranges, 0-400 deg. F. to 0-1200 deg. F. Write for descriptive bulletin listing all types.

**ILLINOIS TESTING LABORATORIES, INC.**

420 NORTH LA SALLE STREET  
CHICAGO 10, ILLINOIS

When Inquiring specify CP A2182 — see information request blank, pgs. 2-3

operating lever can be clamped in any position of the lower 200 degree arc, and, if desired, an additional lever can be attached to the other end of the shaft. Detailed information on Model "V" diaphragm motor on request.

CONOFLOW CORP., Dept. CP, 2100 Arch St., Philadelphia, Pa.

When Inquiring specify CP A2184 — see information request blank, pgs. 2-3

### Electric System of Temperature Control

Illustrated bulletin — Number F-2287-1, discusses electric system of temperature control for heating, ventilating, air conditioning and industrial applications. Described in the bulletin are various room, duct, immersion and remote bulb thermostats which are available. It also describes a complete line of motor operated valves, control motors, and package sets of control equipment available for the maintenance of water temperatures in hot water storage tanks.

BARBER-COLMAN, Dept. CP, Rockford, Ill.

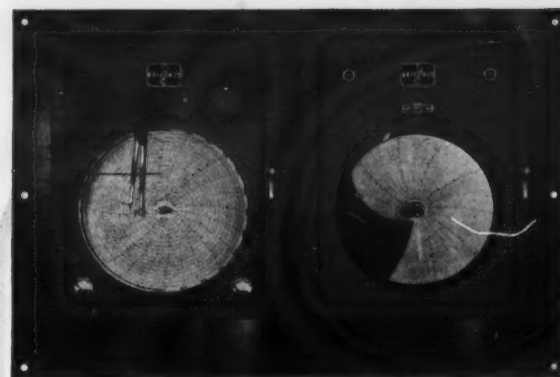
When Inquiring specify CP A2185 — see information request blank, pgs. 2-3

### Absolute Pressure Gauges & Manometers

Absolute pressure gauges, barometers, draft and mercury gauges, altitude standards, Kata thermometers and other specialized instruments are described in a forty page reference manual. Copies of Bulletin D are available upon request from the manufacturer.

PRECISION THERMOMETER & INSTRUMENT CO., Dept. CP, 1434 Brandywine St., Philadelphia 30, Pa.

When Inquiring specify CP A2186 — see information request blank, pgs. 2-3



### Tells Temperature What to Do

By means of a cam which you yourself can cut with tin snips from a blank on which graduations are clearly printed, you can arrange to have temperature, pressure, humidity, liquid level or any other variable follow a schedule that will turn out — automatically — a product that will be the way you want it.

The cam is used in a Bristol Automatic Time-Program Controller. Cams, like recording instrument charts, are interchangeable, so by changing cams, the same controller can be used for different operations.

Write for facts. Address THE BRISTOL COMPANY, 141 Bristol Road, Waterbury 91, Conn.



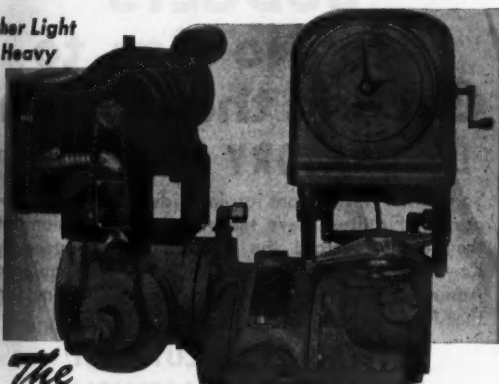
*Engineers process control  
for better products and profits*

**AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS**

When Inquiring specify CP A2188 — see information request blank, pgs. 2-3

## For BATCHING LIQUIDS

*Either Light  
or Heavy*



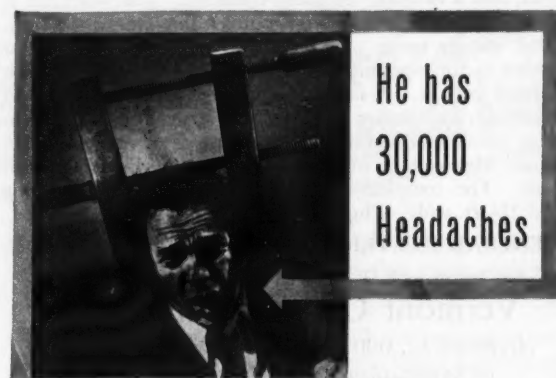
## The FLUIDOMETER

### AUTOMATIC METERING SYSTEM

The Fluidometer System is adaptable to practically every liquid measuring problem in industry, whether it involves pounds, gallons, barrels or tank car lots, hot or cold, light or heavy materials. It is equally accurate on liquids of high or low viscosity, and measures anything not containing abrasive solids that can be handled through a pipe. The precisely calibrated mechanism automatically delivers the predetermined quantity—then automatically resets for the next delivery. Write for Bulletin F-44, which gives complete information.



**ETHERINGTON & BERNER INC.**  
711 Kentucky Avenue • Indianapolis 7, Indiana



He has  
30,000  
Headaches

These are strenuous days for your laboratory supply dealer. No matter what happens he is always in the middle—squeezed between your needs and the manufacturer's ability to supply them.

Every day he faces 30,000 potential headaches—for that is about the average number of items he tries to carry in stock. Some of these are in daily demand. Others are called for only infrequently. Yet when you want them—YOU WANT THEM.

Confronted with shortages on every hand, perplexed by priorities and faced with the loss of employees to the Armed Services, your dealer carries on valiantly. Corning salutes him and bespeaks for him from you as much consideration and cooperation as you can possibly give.

**CORNING GLASS WORKS • CORNING, N.Y.**

**PYREX** brand LABORATORY GLASSWARE



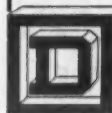
When Inquiring specify CP A2187 — see information request blank, pgs. 2-3



*Send for  
this Catalog*

### PRESSURE, FLOAT & VACUUM SWITCHES

• SQUARE D offers a wide range of switches, designed and built for practically all sizes of water pumps, condensate pumps, vacuum pumps, and air compressors. You'll find this catalog a valuable source of reference. Send for your free copy today. Address Regulator Division, Square D Company, 6060 Rivard St., Detroit 11, Mich.



**SQUARE D COMPANY**

DETROIT • MILWAUKEE • LOS ANGELES

When Inquiring specify CP A2189 — see information request blank, pgs. 2-3

When Inquiring specify CP A2183 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



## AUTOMATIC HYDROMETER

### Continuously Records Densities!

Here's an invaluable aid to operating efficiency in chemical, petroleum, paper, food and other process plants. The Foxboro Liquid Density Recorder furnishes continuous, accurate records of density in flowing liquids. May be calibrated to specific gravity, density or other scales. Automatic Recording Controllers also are available.

Both instruments are for permanent installation. Function without operator's attention. Accuracy is unaffected by foam. Open records easily read to small unit values.

Write for detailed Bulletin A-264. The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U. S. A. Branches in principal cities of U. S. and Canada.

**FOXBORO** DENSITY RECORDERS

When inquiring specify CP A2190 — see information request blank, pgs. 2-3

## PRECISION

### Micro-Muffle FURNACE

with 9 point multiple control  
and special pre-heating chamber

Complete  
with pyrometer

**\$157.50**



An exceptional furnace for laboratory work. Operates on 110 volt AC or DC. Any temperature from 1600°F. to 2500°F. can be controlled within 5°. Temperatures from 100°F. to 300°F. are attained in special auxiliary chamber. Equipped with large, automatically compensated pyrometer and long life, platinum wired muffle. Overall dimensions: 8" wide, 12" high and 16" deep.

Request information on complete line of Huppert Furnaces.

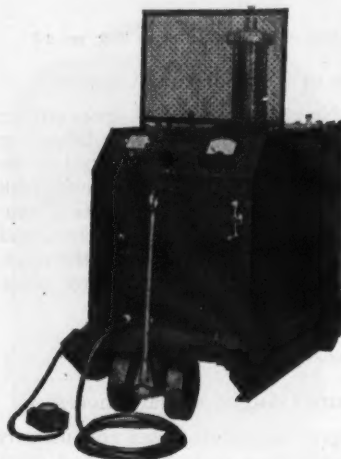
**K. H. HUPPERT CO.**  
6822 COTTAGE GROVE AVENUE  
CHICAGO 37, ILLINOIS

When inquiring specify CP A2191 — see information request blank, pgs. 2-3

## INSTRUMENTS

### 100,000 V. Portable AC Test Set

For motors, generators and other apparatus; high degree of accuracy throughout range; foot switch and screen guard are safety features



TEST SET — 10 kva capacity

tractively styled steel housing mounted on a four wheel truck. Safety foot switch.

**Description** — The equipment consists of an oil immersed step-up transformer, hand-operated induction regulator for smooth voltage control, double-scale output voltmeter, electric timing clock, overload relay with automatic reset, and a two-pole magnetic contactor. The voltmeter is arranged for high degree of accuracy throughout the complete voltage range up to 100,000 volts at all loads and power factors, permitting precision measurements on the applied voltage. A safety foot switch, which must be held down during another test, instantly de-energizes set when it is released. Another safety device is screen guard between high-voltage bushing and operator's working position. The complete test set is 6 ft. high, 5 3/4 ft. long and 2 1/2 ft. wide. Plugs into 230 v., 60 c. outlet.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A2192 — see information request blank, pgs. 2-3

### Vermont Granite Surface Plate

Accuracy to .0001" — not subject to corrosion  
or oxidization; low coefficient of friction



Checking Jig Part

co-efficient of friction. Rust-proof, corrosion-proof. Non-magnetic. Easily cleaned with any commercial solvent or soap and water.

**Description** — Only edge grain granite is used in making

**Uses** — For highly accurate testing of heavy apparatus which cannot readily be moved to a stationary test berth or laboratory, — suitable for conducting tests on such large high-voltage equipment as motors, generators, circuit breakers, bushings, short lengths of cable and various types of apparatus.

**Features** — Very compact, sturdy construction. Component parts housed in an at-

## "Anets" LABORATORY CABINETS

Automatic Control



### PROCESSING ★ TESTING with Precision Control

★ Use these "Anets" Laboratory Cabinets to control processing, fabrication and manufacturing to exact standards. Save time and money wasted by sub-standard and tolerance fabrication.

More — get finger-tip automatic control of all temperature and humidity conditions within a few degrees. Write for Bulletin No. 18 today.



★ Processing fabric plastics  
★ Testing electrical equipment and aircraft parts

★ Incubation, germination, bacterial culture  
★ Weathering. Moisture control

**ANETSBERGER BROTHERS**

3322 Elston Avenue  
Chicago 18, Illinois

When inquiring specify CP A2193 — see information request blank, pgs. 2-3

## "BUDGETS" Are No Bar to Getting the BEST in LABORATORY FURNITURE

Sometimes institutions or individuals needing Laboratory Furniture have the mistaken impression that they cannot afford the fine quality produced by Kewaunee. It is true that Kewaunee has equipped America's finest Laboratories, but here is one fact that is sometimes overlooked.

### KEWAUNEE'S "CUT-COST" PLAN OF UNIT ASSEMBLY

—greatly lowers production costs, while at the same time it gives you the latest conveniences, finest materials and workmanship, plus modern streamlined design, which enables your Laboratory to "grow gracefully." Kewaunee's prices are competitive. Your inquiry is invited.

INDUSTRIAL DIVISION

**Kewaunee Mfg. Co.**  
LABORATORY FURNITURE EXPERTS  
C. G. Campbell, President

5011 S. Center St., Adrian, Mich.  
Representatives in Principal Cities

When inquiring specify CP A2194 — see information request blank, pgs. 2-3



## INSTRUMENTS

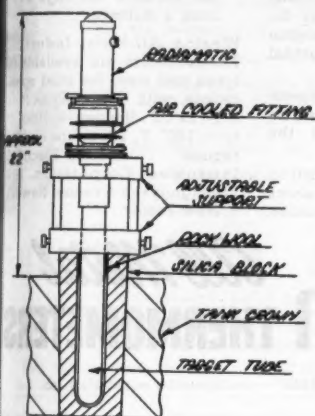
These plates which are available in a wide selection of sizes from 8" x 10" up to 30" x 72" (and even larger on application). Accuracy to .0001 inch. Specification-price sent on request.

IDEAL COMMUTATOR DRESSER CO., Dept. CP, Chicago, Ill.

When inquiring specify CP A2195 — see information request blank, pgs. 2-3

### Silica Block for Measurement of Crown Temperature in Glass Tank

*More Constant Calibration; increased life of pyrometer; more open scale divisions throughout the operating range*



Pyrometer, block, tube assembly.

Block is installed flush with inside roof surfaces. It is sometimes installed so that the bottom of the block extends into the furnace for several inches. The pyrometer is sighted into an 18 inch "Sillimanite" target tube which is installed in the block to within one quarter inch of the bottom. An air-cooled fitting only is necessary to prevent overheating of the pyrometer under normal operating conditions. The target tube is maintained under a slight positive pressure by connecting to a low pressure air supply. The tube is accurately positioned by adjustment of the vertical support. The annular opening between the tube and the silica block is packed with rock wool or similar material to prevent accumulation of batch dust.

BROWN INSTRUMENT CO., Dept. CP, 5060 Wayne Ave., Philadelphia, Pa.

When inquiring specify CP A2196 — see information request blank, pgs. 2-3

### Instruments for Controlling Suction, Pressure, Flow and Liquid Level

A handsome new booklet has just been released which features schematic drawings of typical applications of instruments and controllers to the following industrial control problems: pressure reducing, pressure relief or back pressure, rate of flow, turbine-driven compressor control, and control of speed, liquid level and liquid density. The various instruments and controllers applicable to these problems are illustrated and described in detail. A copy of the publication (Bulletin 45-713) will be sent to anyone interested in the Automatic Control of industrial processes. Address The Hays Corporation, Michigan City, Indiana.

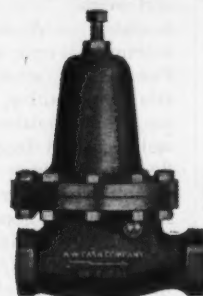
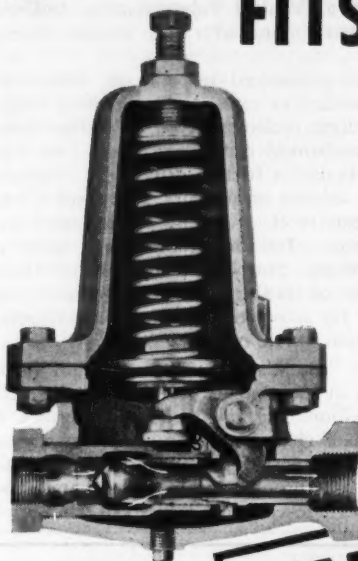
HAYS CORPORATION, Dept. CP, Michigan City, Ind.

When inquiring specify CP A2197 — see information request blank, pgs. 2-3

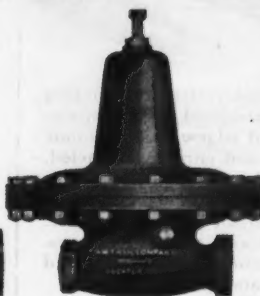
JULY - AUGUST, 1945

THIS

## Streamlined Design FITS THE JOB . . . .



Type 1000—MP  
Normal size diaphragm.  
Made for high delivery pressure.



Type 1000—LP  
Has large diaphragm.  
Made for low delivery pressure.

## CASH STANDARD Streamlined PRESSURE REDUCING VALVES TYPE 1000

The positive moving valve arrangement in STREAMLINED housing, with its continuous-duty performance, insures against trouble from gumming up, thereby minimizing maintenance.

You may not have realized previously the exact value Streamlined flow around the inner valve can have for a line such as yours.

The "1000" does assure you such performance as the following . . . maximum capacity when needed most . . . accurate pressure control under tough operating conditions . . . no variations in the reduced pressure . . . wide opening valve that permits of maximum flow. Before you get your "1000" valve it is made to work under the identical pressure conditions given on your purchase order. We make sure in this way that it fits the job . . . we do know that Streamlined flow is right for the job and you will quickly find it so.

Trouble-free service  
Smooth operation  
Tight closure  
Accurate regulation  
Elimination of failures  
Constant delivery pressure  
No spillage  
Maintenance needs practically zero  
Speedier production results  
Cost-saving operation

Bulletin "1000" gives you details on elimination of erratic pressure, savings in operating and maintenance costs, and complete performance facts of the CASH STANDARD Streamlined Type 1000 Pressure Reducing Valve.

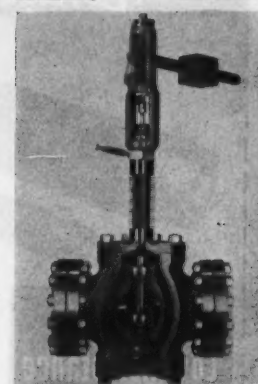
CASH STANDARD

CONTROLS . .  
VALVES

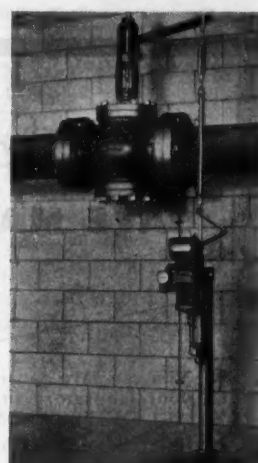
A. W. CASH COMPANY  
DECATUR, ILLINOIS

When inquiring specify CP A2198 . . . see information request blank, pgs. 2-3

OTHER VALVES  
from the  
CASH STANDARD  
LINE

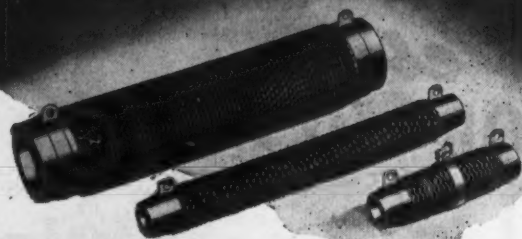


Cash Standard Balanced Valves, Series 42, have no lost motion. Have roller guides that kill side strains; stop packing trouble. Practically no maintenance. Sizes 1/2" to 12"; pressures up to 600 lbs. temperatures to 800° F. Bodies: iron, bronze, steel; all standard trims. With Air Cooled Packing Box (42-AC-R) shown above; or water cooled; or no cooling box. Made also with center guide. Bulletin 965.



The Cash Standard Type 100 Controller above is operating on 8" Type 42-R Balanced Valve, automatically reducing 250 lbs. down to 125 lbs. pressure, handling 200,000 lbs. steam per hour. Type 100 Controllers have lots of operating power, enough for any size valve; are fully compensated; have adjustable range; are very sensitive. Bulletin 963 covering the Controller and Bulletin 965 covering the Valve give complete and interesting details. Write for them.

## OHMITE "Corrib" Resistors (Corrugated Ribbon)



FOR  
Low Resistance  
High Current  
Applications

Exposed resistance winding of corrugated ribbon space-wound edgewise on ceramic tube, and vitreous enameled. Can be operated at higher wattage than the regular type of resistor of same core size. Fixed and adjustable types. Write on company letterhead for Catalog No. 40.

OHMITE MANUFACTURING CO.  
4918 Flournoy St., Chicago 44

Be Right with **OHMITE**  
RHEOSTATS • RESISTORS • TAP SWITCHES

When inquiring specify CP A2199 — see information request blank, pgs. 2-3

## SAVE MAN HOURS



You can save considerable man hours in your laboratory through the use of the ARL-DIETERT 2 Minute Carbon Determinator. This improved Carbon Determinator enables an operator to determine either the preliminary or final carbon content of all metals with speed and accuracy. New features eliminate much of the human equation and simplify the procedure. A complete determination can be made within 2 minutes after the sample is weighed.



The Varitemp Combustion Furnace is recommended for use with the 2 Minute Sulfur Determinator. Contained within the single unit are the furnace, transformer, pyrometer, oxygen valve, voltage switches and power switch. Temperatures range up to 2750 deg. F.

When inquiring specify CP A2200 . . . see information request blank, pgs. 2-3

## INSTRUMENTS

### Recording, Indicating, Totalizing Mechanical Flow Meter

Accuracy — response to differential within  
1% over standard or extra wide range

Uses — This is a precision instrument that serves to great advantage in the distribution and use of liquids, steam, air and gas. It measures the flow through standard differential producers such as Venturi Tubes, nozzles, and orifices; also it is adapted for use with open nozzles, flumes and weirs.

Features — Accuracy-guaranteed response to differential within 1% over standard or extra wide operating range. Fast moving, seven digit, cyclometer type. Totalizer operating on positive, mechanical drive principle, — no slipping clutch, ratchet, brake, or friction drive used. Mercury wells contain large volume of mercury and a solid iron float having long float travel, providing ample power and trouble free operation. Interchangeable range tubes to meet changed conditions. Simple and inexpensive attachment for transmission of readings to remote duplicate registering dials and/or for automatic control or proportioning of chemicals in relation to rate of flow.

Description — The "Flo-Watch" is a mechanical meter actuated by changes in the mercury level on U-tube wells in response to variations in flow through an orifice or Venturi tube. Minute changes in flow, and thus in the position of the float are positively transmitted to the cam shaft without back lash through a unique chain and spool mechanism. The high leverage of this spool, the ample

Write for descriptive leaflet  
and formal quotation.



Harry W. Dietert Co.

9330 KOSELAHN

DETROIT 4 MICH

## WESTON All Metal THERMOMETERS



DEPENDABLE  
TEMPERATURE READINGS  
AS HIGH AS 1000° F

Here are advantages of Weston All-Metal Industrial Thermometers that provide long-term dependability for Diesel engine applications and for industrial heat control.

WESTON all-metal temperature element has proved its stability throughout the years.

Rugged all-metal construction resists vibration, shock and other mechanical abuse.

Large gauge-type scales permit accurate readings from a distance.

Weston All-Metal Industrial Thermometers are available in types and sizes for most applications, with stem lengths from 2½" to 48". Ranges + 1000° F to - 100° F. Literature sent on request . . . Weston Electrical Instrument Corporation, 611 Frelinghuysen Avenue, Newark 5, New Jersey.

## Weston All Metal THERMOMETERS

When inquiring specify CP A2201 — see information request blank, pgs. 2-4



Mr. Tops, the Paragon  
symbol of top quality

## Paragon

your Top Source  
of TIME CONTROLS!

Automatic time controls are speeding production . . . multiplying manpower efficiency . . . and saving countless hours in thousands of plants in scores of industries. Submit your timing problem to Paragon . . . your top source of time switches and controls.

ONLY \$13.00 LIST . . . 300 Series self-lubricating time switches are accurate and durable for controlling stokers, oil burners, blowers, pumps, valves, air conditioning, etc. America's leading time switch value.

TIME DELAY RELAYS . . . the time cycle of Paragon synchronous motor operated, instantaneous reset type relays is unaffected by vibration or changes in ambient temperature. For motor and tube protection.

7-DAY TIME SWITCHES . . . are designed for presetting heating or ventilating schedules on a weekly basis with independent daily operations.

MANUALLY PRESET TIMERS . . . the 800 Series is designed to close or open a circuit at the end of a preset interval, such as attic fan control.

All these units are designed and built by Paragon . . . a pioneer in the automatic timing field. Send for complete bulletin.



300 Series



800 Series

Paragon Chicago

BUILDERS OF ELECTRICAL EQUIPMENT

SINCE 1905

PARAGON ELECTRIC  
COMPANY  
720 Old Colony Bldg.  
Chicago 5, Illinois

When inquiring specify CP A2202 — see information request blank, pgs. 2-4

CHEMICAL PREVIEW



## Heroes AT WORK

### For MOM . . . it's INSPECTION For HER Son . . . it's FIGHTING

And together they do a grand job. For MOM is on the job, every day, inspecting each thermometer before it can be shipped and nothing gets by her eagle eye. It's folks like this, who are imbued with a spirit of loyalty to our firm who are responsible for the fine Thermometers that help you make a finer product.

Remember, in post-war plans, only GOOD Thermometers should be considered in rebuilding your future sales.

Clip this ad as a reminder. (Catalog on request)

## THE PALMER CO. Mfrs.

Industrial, Laboratory, Dial & Recording Thermometers

2519 Norwood Ave., Cincinnati, Norwood, O.  
Canadian Plant: King & George Sts., Toronto

When inquiring specify CP A2203 — see information request blank, pgs. 2-3

## NEW Barnstead PURITY METER WITH USEFUL CONVERSION TABLE

CONVERSION TABLE		
P.P.M. NaCl	SPECIFIC RESISTANCE IN OHMS (18°C)	SPECIFIC CONDUCTANCE IN MICRO-MHOS (18°C)
0.0	26,000,000	0.04
1.0	377,400	2.65
2.0	188,700	5.30
3.0	125,800	8.20
4.0	99,500	10.05
5.0	84,000	11.90
6.0	72,700	13.75
7.0	64,100	15.60
8.0	57,300	17.45
9.0	51,800	19.30
10.0	46,000	21.50
15.0	30,000	33.30

Barnstead Still & Sterilizer Co. Inc.

Barnstead's New Purity Meter provides a simple, rapid method of measuring the purity of distilled water for daily checking. Operates from any A.C. outlet. Electric eye indicates correct reading which is given directly in p.p.m. as NaCl.

The newly added conversion table instantly gives equivalent reading in ohms or micro-mhos for those who use these terms. Essential wherever distilled water is used. Write for bulletin.

**Barnstead**  
STILL & STERILIZER CO. INC.  
46 Lanesville Terrace  
Forest Hills  
Boston 31, Mass.

## INSTRUMENTS

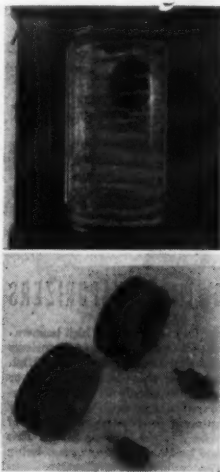
quantity of mercury and large area of float provide adequate power for permanent accuracy and low maintenance. In place of stuffing box, a pressure-tight leather sealed bearing is employed which has an external outlet to prevent any possible water damage to the mechanism in the event of accident. Through this bearing changes in the position of the float are transmitted by rotary motion of a highly burnished cam shaft, from the inside of the meter body to rate cam in the instrument case, with extremely low friction loss. The rate cam, calibrated to individual requirements, provides pen movement in direct proportion to the rate of flow. Resting lightly on this cam is a cam follower with adjustable pen arm attached. The relation of these two elements is easily adjusted and, when adjusted, they form a single rigid assembly that provides continuous and full range accuracy. The cam follower also governs totalizer registrations with equal accuracy. An eight page bulletin describes the meter in detail and provides a large cross sectional view to emphasize design and operating features. A number of applications are discussed and blue-print drawings illustrate important points. The various instruments for recording, recording-totalizing, recording-indicating are all illustrated and described. Copies on request.

BUILDERS-PROVIDENCE, INC., Dept. CP, Providence, R. I.

When inquiring specify CP A2205 — see information request blank, pgs. 2-3

### Coating Provides Rectifier with Two-Way Protection

*Barrier layer protected from within; rectifying properties preserved indefinitely; resistant to spray and fumes*



Above — rectifier suspended in salt test tank — below type "K" units.

**Uses** — This newly developed "Selenium" rectifier withstands effects of salt spray for more than 100 hours at 50 degrees C. **Features** — The unit features a radically different assembly method and coating technique. Two way protection of the "Selenium" plates is achieved. **Description** — The coating protects the "Selenium" barrier layer from within and preserves its rectifying properties indefinitely. It also protects the "Selenium" barrier layer from exterior attacks by salt spray, fungi, mercury vapor and other corrosive fumes. The recently completed test consisted of a 3 minute spraying of the rectifiers with a 20% salt solution at 55 degrees C., followed by a 3 minute air blast at 55 degrees C. The cycle being repeated continuously for the entire 100 hour test. A strong ultra-violet light was played on the rectifiers for the length of the test. The results suggest many industrial applications of these rectifiers. Complete information concerning type "K" units on request.

SELENIUM CORP., Dept. CP, 1719 Pico Blvd., Los Angeles, Calif.

When inquiring specify CP A2206 — see information request blank, pgs. 2-3

## Double Header Clean-Out MANOMETER



This instrument is distinctive among clean-out U type manometers because of its double head—removable clean-out heads at both top and bottom. These heads are easily disconnected permitting quick and frequent cleaning of complete instrument.

The manometer (Model B-1275) has a large bore Pyrex tubing of 1/2" inside diameter which gives a flat indicating fluid meniscus. Bold numerals and graduations facilitate distant reading. Scale is adjustable.

B-1275 is designed for maximum line pressure of 100 lbs. per sq. in. It has holes for mounting to wall or panel. Ask for Catalog C-11 giving other features of this outstanding instrument.

**THE MERIAM INSTRUMENT CO.**  
10940 MADISON AVENUE • CLEVELAND 2, OHIO  
WESTERN DIVISION:  
1418 WILSON AVE., SAN MARINO, 9, CALIF.  
IN CANADA: PEACOCK BROS., LTD., MONTREAL

**MERIAM**  
★  
★ Instruments  
★  
ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

When inquiring specify CP A2307 — see information request blank, pgs. 2-3

## Stokes MICROVAC Pumps

HEART OF HIGH VACUUM SYSTEMS



- Higher Vacuum (in the low micron range)
- High volumetric efficiency
- Low power requirement
- Complete discharge of air—no re-expansion

- Continuous dehydration of oil—no moisture to re-evaporate
- Discharges sudden slugs of liquid without injury
- Easily accessible, non-corrosive discharge valve
- Rugged, compact, simple construction
- Long life . . . negligible maintenance
- Five sizes—from 15 to 225 cu. ft. per min.

**Stokes VACUUM GAUGES**  
(Patented McLeod Type)  
**Are Always Accurate**



- Require no calibration
- Rapid readings
- Simple to operate—just tip and read
- Two models—(AA)—0 to 5000 microns (BB)—0 to 700 microns, with readings to 1/10 micron.

**F. J. STOKES MACHINE CO.**  
5974 Taber Road, Philadelphia 20, Pa.

**Stokes High Vacuum**  
PUMPS • GAUGES • EQUIPMENT

When inquiring specify CP A2208 — see information request blank, pgs. 2-3

## INSTRUMENTS

### Washability Testing Apparatus

*For testing washability of paint, cleaning compounds under controlled conditions*

**Uses** — For testing washability of paint. It may also be used for testing cleaning compounds.

**Features** — This device is particularly useful in view of the importance of washability; many specifications now include washability tests.

**Description** — Washability tests such as referred to above, including numerous Federal, Navy and Army specifications may be run on this apparatus. The official specifications include cold water paint, resin emulsion, one coat flat wall paints, etc. Tests may be run with water or a soap solution, in accordance with the requirements of the individual specification. Speedier results are of course obtained with soap solutions. The apparatus consists of a heavy duty vacuum operated windshield wiper having a speed control. An ordinary water aspirator will provide vacuum to operate the wiper. The brush assembly weighs one pound. Design and adjustments provide for quick insertion and removal of the brush for cleaning or dipping into soap saturated solution. A uniform plane contact is maintained between the bristles and the paint film. The wiper is attached to a one quarter inch plated brass table upon which test panels are clamped. The number of brush strokes are recorded by an automatic counter attached to the wiper arm. The brush is placed in operation by attaching vacuum hose to the aspirator. The brush is allowed to remain in motion until an abraded surface is apparent. In testing cleaning compounds a cellulose sponge in a metal

**You Get HIGH temperatures at LOW pressures with DOWTHERM VAPORIZERS**

**McKee-Eclipse**

In heat transfer processes using high temperatures, McKee-Eclipse DOWTHERM Vaporizers offer the following unusual advantages: High temperature vapor phase heat up to 650° or 700° with pressures of only 55 lbs.; exceptionally easy to control temperature of product, by simply controlling temperature or pressure of vapor generated in the DOWTHERM unit. This prevents over-heating, scorching, or discoloring of product and rapid corrosion of metal containers often encountered when using direct heat.

In the McKee-Eclipse DOWTHERM Vaporizer, you get a complete package, consisting of boiler with combustion chamber, burner, combustion safety equipment, electric-pressure controller, low-level fuel cut-off, etc. Write for bulletin giving full details. ECLIPSE FUEL ENGR. NEERING CO., 719 South Main, Rockford, Ill.

**McKee-Eclipse DOWTHERM Vaporizer** for heating jacketed Autoclaves, Gas-fired or oil-fired models from 33,000 to 1,000,000 BTU per hr.

**McKee-Eclipse**

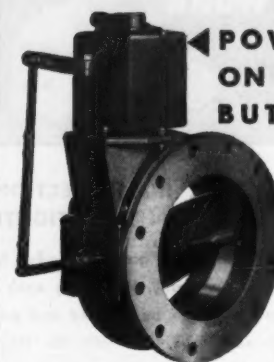
Gas Safety Shut-Off Valves  
Controlled Pressure Burners  
Air-Gas Proportional Mixers

"It's for Gas — buy Eclipse"

McKee-Eclipse Burners  
for high pressure  
steam boiler — gas or oil

When inquiring specify CP A2209 — see information request blank, pgs. 2-3

## BARBER-COLMAN



**POWER UNIT  
ON ROCKWELL  
BUTTERFLY  
VALVE**

Valves of this type are used to control air, gases, steam, liquids, or solids, and the rate of flow can be automatically adjusted to meet changing conditions. Barber-Colman POWER UNITS are ideally suited for industrial applications. Control action may be governed by a recording or indicating controller or other contact-making control instrument. Write for Bulletin No. F-1912.

**BARBER-COLMAN COMPANY**  
1201 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A2210 — see information request blank, pgs. 2-3

**EASY TO READ DIAL THERMOMETER**

**Economize WITH POWERS TEMPERATURE REGULATORS**

Use a Powers No. 11 Temperature Indicating Regulator when you want the advantages of a easy-to-read dial thermometer combined with a dependable self-operating regulator. The dial thermometer gives a visual check on the performance of the regulator and makes it easy to adjust for the required operating temperature. Various dials and ranges are available. Is Easy To Install — because both the thermometer and the regulator operate from the same thermal system — only 1 tapped opening is required. Write for Circular 2511.

**THE POWERS REGULATOR CO.**  
2756 Greenview Avenue, Chicago 14, Illinois  
231 E. 46th St., New York 17, N. Y.—Office  
in 47 Cities . . . See your phone directory.

**POWERS**

OVER 50 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

CONTROLS HEATING OR COOLING MEDIUMS

When inquiring specify CP A2211 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## INSTRUMENTS

box — total weight one pound — may be substituted for the brush. A leaflet illustrating this apparatus in detail is available on request.

HENRY A. GARDNER LABORATORY, INC., Dept.  
CP, 4723 Elm St., Bethesda, Md.

When inquiring specify CP A2212 — see information request blank, pgs. 2-3

### Voltage Regulator for Power Transformers

A voltage regulator for use on power transformers to change taps without interrupting the load and to keep line voltage at proper level is presented in a new bulletin on load ratio control. Methods of interrupting current under load and the equipment used—large dial switches for changing taps and controlling voltages, driving mechanisms used for operating switches and circuit breakers, and Allis-Chalmers' automatic "Feather-Touch" control—are discussed. The bulletin also shows applications of load ratio control in auto-transformers, main windings, grounded neutral, multiple-winding transformers, and with series transformers, pointing out how each individual installation is provided with a "tailor-made" circuit. The bulletin, B6174, may be obtained by request.

ALLIS-CHALMERS MFG. CO., Dept. CP, Milwaukee 1, Wis.

When inquiring specify CP A2213 — see information request blank, pgs. 2-3

### Low Frequency Crystal Employs Resonant Pin Assembly

*Maintains frequency in narrower limits; damping effect is negligible*



**Uses** — For such applications as frequency standards, timers, measuring equipment, frequency meters, carrier current and other instances where an accurate source of low frequency is required.

**Features** — Maintains frequency within considerably narrower limits than have generally been obtainable.

**Description** — In this unit, the FM6, a resonant pin assembly has been employed.

The steel pins are mechanically resonant to the crystal frequency or some multiple of that frequency so that any damping effect of the clamping pins is negligible. The internal assembly is protected against moisture and humidity by means of a captive gasket seal employed between the aluminum shell and laminated phenolic base. Most crystals in the range 70 kc-400 kc have either been damped between phenolic knife edges or placed in a fixed air gap assembly which allowed the crystal to shift between its electrodes with resultant shifts in crystal frequency.

CRYSTAL for timers, frequency standards, etc.

BLILEY ELEC. CO., Dept. CP, Union Station Bldg., Erie, Pa.

When inquiring specify CP A2214 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



## HEVI DUTY-ALLOY 10 TUBE FURNACES

An interesting application of Hevi Duty Alloy 10 Tube Furnaces is pictured showing five type HDT-5730 Furnaces. They are operated at 2200° F with a hydrogen atmosphere inside the tube. . . Hevi Duty Alloy 10 Furnaces are finding many applications where exact, controlled temperatures above 2000° F are required. There is a type and size for your requirements — send us your specifications.

**HEVI DUTY ELECTRIC COMPANY**

HEAT TREATING FURNACES HEVI DUTY ELECTRIC EXCLUSIVELY  
MILWAUKEE, WISCONSIN

When inquiring specify CP A2215 . . . see information request blank, pgs. 2-3

*"The Fountain  
of Youth"*  
**FOR YOUR COMPANY**

### ...technical research properly organized for profit!"

It really pays to give your research men the best in laboratory furniture. For, as you surely know, a well-equipped laboratory pays for itself over and over again. Both in approved products at lower production costs and in developing profitable new products.

In laboratory furniture, the best means Steelab — the fireproof furniture with exclusive lock-jointed construction, ball-bearing drawer suspensions, and micro-leveling device. Built of lead coated copper alloy steel . . . finished with enamel highly resistant to acids, alkalis, solvents, water, and abrasion. An achievement in functional design, every Steelab unit provides the precisely right stage for profitable research.

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**LABORATORY FURNITURE CO., INC.**

Manufacturers and Engineers of Scientific Laboratory Equipment for Over a Quarter Century

37-18 Northern Boulevard, Long Island City, N.Y.

## INSTRUMENTS

### AC Test Set for Linemen's Rubber Gloves Operates on 115 v., 60 c.

*Consists of two sections fitting together as one unit — power supply and test cabinet*

**Uses** — For accurate high-potential testing of linemen's rubber gloves.

**Features** — Large glass window permits visual inspection during the test. The two sections comprising the set — the power supply and the cabinet can be used separately if desired.

**Description** — The power supply consists of a 2 kva, 20,000 volt oil-immersed transformer, variable voltage auto-transformer for smooth voltage control, a large switch-board-type voltmeter with 10 kv and 20 kv-scales, an air circuit breaker with magnetic overhead trip, supply switch, and a red signal lamp. The voltmeter is energized from a coil in the high voltage winding, and gives highly accurate indication at all loads and power factor. The glove test compartment contains a water tank in lower section, provided with supports for simultaneous testing of six standard linemen's rubber gloves. Contact with water inside the gloves is made by chains hanging from high voltage bus which is solidly supported on insulators. A milliammeter connected in the high voltage circuit indicates leakage current in any glove if any one of six control buttons at the top of the cabinet is pushed. The inspection window which can be raised to give access to water tank, is interlocked

## TODAY OR POST-WAR!



*It Is Important to Measure Valuable  
Stored Liquids Accurately With -*  
**LIQUIDOMETER Tank Gauges**

*"THEY'RE ALWAYS DEPENDABLE"*

100% automatic.

No pumps, valves, or auxiliary units needed to read them.

Models available for either remote or direct readings.

Accuracy unaffected by specific gravity of tank liquid.

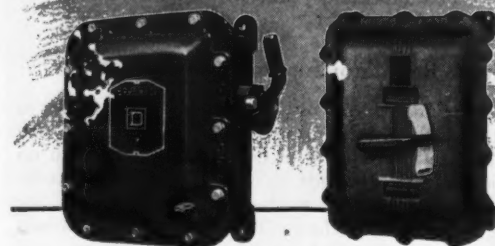
Approved by Underwriters' Laboratories for gauging hazardous liquids.

Write for complete details.

THE **LIQUIDOMETER** CORP.  
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A2217 — see information request blank, pgs. 2-3

## Explosion-Resisting SAFETY SWITCHES—CIRCUIT BREAKERS

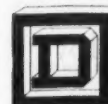


### for Class 1, Group D Hazardous Locations

Square D offers a complete line of explosion-resisting industrial safety switches and circuit breakers. Cast iron enclosures conform with requirements of Underwriters' Laboratories, Inc. Switch capacities range from 30-200 amperes unfused. 575 volts A.C. 600 volts D.C.

Circuit breakers from 15-600 amperes, 125/250-250 volts D.C. 250-600 volts A.C.

for detailed Bulletin, address the Square D Company, 6060 Rivard Street, Detroit 11, Michigan.



**SQUARE D COMPANY**

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A2218 — see information request blank, pgs. 2-3

**GALLONS**  
INSTEAD OF GUESSES

**BUILDERS**  
*Propeloflo*



for  
**METERING WATER**

This propeller-type flow meter accurately measures main water supply and the distribution of hot or cold liquids in process plants; ideal for metering water pumped from wells where flow is on and off. Write for Bulletin 350. Address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Codding St., Providence 1, R. I.

*Sincerely*  
**BUILDERS-PROVIDENCE**

When inquiring specify CP A2219 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

When inquiring specify CP A2216 — see information request blank, pgs. 2-3



## STERLING No. 50 SERIES TANK and STERILIZER CONTROL MAINTAINS TEMPERATURES WITHIN 1° F

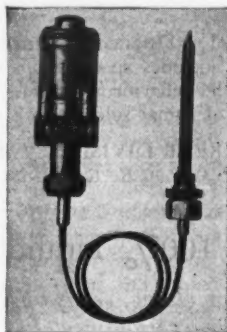
plus or minus  
This small, compact regulator is especially designed for sterilizers, tanks, urns, heaters and other similar applications requiring accurate, dependable temperature control. Sensitive, quick-acting, it maintains temperatures within 1° F. plus or minus.

Precision built throughout with nickel plated finish and tapped  $\frac{3}{8}$ " inlet and outlet. Available with either straight capillary fittings (Model 50 illustrated) or elbow fittings (Model 50 AC) for sterilizers.

Sterling temperature controls are designed in a variety of sizes and styles for a wide range of tank and process applications. Consult your local jobber or write for complete information and prices.

**STERLING, INC.**  
3738 NORTH HOLTON STREET  
MILWAUKEE 12, WISCONSIN

TANK AND PROCESS CONTROLS HEATING PUMPS  
HEATING SPECIALTIES



When inquiring specify CP A2220 — see information request blank, pgs. 2-3

## VENTURI DESIGN— added SAFETY

This FARRIS Venturi Safety Valve No. 2150 develops extra high lift for HI-Capacity discharge . . . on HI-Pressure, HI-Temperature work. "Precision Alignment" secures minimum blow-down for economical plant operation. "Separator Bell" for added boiler-room safety.

All finished surfaces precision machined. Pops accurately, dependably — for the protection of your equipment. Built for long-life-operation without maintenance expense. Just one of the complete line of FARRIS Safety and Relief Valves.

Write today for our Bulletin.

**FARRIS ENGINEERING CO.**  
330 Commercial Ave., Palisades Park, N. J.

**Farris**  
SAFETY and  
RELIEF VALVES



Built in steel and semi-steel for pressures to 600 lbs. at 750° F. Sizes  $\frac{1}{2}$ " to 6" x 8". Meets ASME requirements.

When inquiring specify CP A2221 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## INSTRUMENTS

so that voltage cannot be applied unless it is completely closed. The set with no exposed live parts meets requirements of National Safety Council and ASTM.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A2222 — see information request blank, pgs. 2-3

## Assembly Combines Clock, Time Switch and Interval Timer

*For heaters, stirrers, switches, relays,  
controlling ovens, etc.*

**Uses** — Combines electric clock, time switch and interval timer in one convenient assembly in handsome cabinet. Many applications in laboratory, plant; for time operation control of electrical devices, heaters, stirrers, auxiliary switches or relays, up to 1500 watts load.

**Features** — Plugs into 110-115 v. 60 c., AC line.

**Description** — Electric clock-dial has second sweep hand for fractional minute observations. Small time switch dials are adjacent to clock dials. The time switch will start or stop any electrical device at a pre-determined time within a 12 hour interval. Time switch can be set for a stop and start or start and stop for any cycle of operation within a 12 hour period. The interval timer is a mechanical timer spring wound, with setting knob to ring gong after elapse of any interval within 60 minutes.

AMERICAN TECHNICAL CO., Dept. CP, 532 Addison St., Chicago 13, Ill.

When inquiring specify CP A2223 — see information request blank, pgs. 2-3

## Automatic Controls That Save Material and Labor

### FARATRON Electronic LIQUID LEVEL CONTROL

prevents overflow waste and emptiness damage. Operated by electronic action, the FARATRON signals or controls the level — high or low — of any kind of liquid at any temperature, in any type of container or processing machine, either open or closed, free or under pressure.

Absolutely safe, absolutely sure, accurate to 1/16th inch. Needs no attention. Write for descriptive Bulletin 1447.



### LUMENITE INTERVAL TIMER



signals or controls the timing of any program or operation in split seconds to hours. Automatic reset and repeat or manual reset. Dependable, accurate, long-life, heavy duty construction.

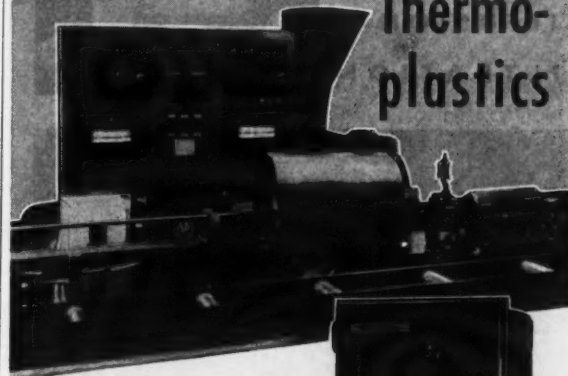
Write us your requirements or ask for Bulletin 1447T.

**Lumenite Electronic Company**  
407 S. Dearborn St. Chicago 5, Ill.

When inquiring specify CP A2224 — see information request blank, pgs. 2-3

## PRECISE TEMPERATURE CONTROL of Mills

Thermo-  
plastics



insured with  
**WHEELCO  
Capacitrols**



Elmer E. Mills Corporation, Chicago, chose Wheelco Proportioning Type Capacitrols for fast and accurate temperature control of two zones of a plastics extrusion machine producing tubing and other products for process use. Wheelco Capacitrols are also used on injection molding equipment.

These "Electronic Control Principle" controllers insure closer control than is usually available, by the reduction of over and undershooting of temperatures.

Extrusion machines at Mills produce vinylidene chloride (MILLS PLASTIC) products used extensively in process and food industries. MILLS PLASTIC tubing has replaced aluminum, copper, brass, nickel and stainless steel on many applications because of its ability to stand high pressures, its insulating qualities, resistance to chemicals and flexibility.

Let us help you on your temperature control problems.

### WHEELCO CONTROLS

A complete line, including flame-atal combustion safeguards . . . Capacitrol pyrometer controllers . . . Indicating pyrometers . . . Proportioning controls . . . Program controls . . . and a wide range of accessories

Ask for  
Condensed  
Catalog  
Z6300



**WHEELCO  
INSTRUMENTS COMPANY**

841 W. Harrison St. Chicago 7, Ill.

When inquiring specify CP A2225 — see information request blank, pgs. 2-3

## Investigate Filtros The Porous Mineral Medium For—

**AERATION—**  
**AGITATION—**  
**DIFFUSION—**  
**FILTRATION**



**What Filtros Is.** Filtros is a rigid, strong, uniformly porous, acid proof mineral medium composed essentially of silica. It is a truly porous ware, not cellular. Nothing is used in its manufacture that is not in the finished product. It is porous by nature and not by any artificial means. Filtros is machineable.

### Physical Properties:

**Structure:** Its structural condition is best described by comparing it to a mass of capillary tubes which take a tortuous path through the ware.

**Porosity:** Filtros is made in seven standard grades. Controlled variations in pore structure provide a 40 fold range in rated flow capacity, while maintaining high mechanical strength.

**Capillarity:** Filtros retains by capillarity from 25% to 40% or more of its weight of water.

**Temperature Resistance:** Filtros can withstand safely temperature variations of 150° F., even if made suddenly. Expansion and contraction amounts to approximately 1 in 1800 for a range of 100° F.

### Chemical Properties:

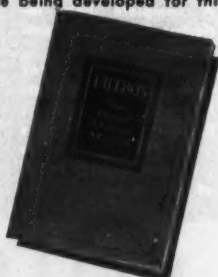
Filtros is chemically inert and is unaffected by those chemicals which do not attack silica.

**Uses:** Some of the present uses for Filtros are aeration, agitation, diffusion and filtration of gases and liquids. Because of its porous nature it is also used for electrolytic tank linings. Filtros is being successfully used as a catalyst carrier and its importance in this duty is of increasing interest. In addition to these, a number of new uses are being developed for this versatile material.

Filtros is regularly supplied in plates 12" x 12" x 1 1/2" but can also be furnished in curved shapes, grooved bottom plates, cylinders, discs, thin plates and special assemblies.

Filtros engineers will be glad to work with you on any of your processes where Filtros might be applicable. Consultation with them puts you under no obligation.

Send for Free Copy of "Filtros — The Porous Mineral Medium."



**FILTROS Incorporated**  
HOWARD ST., E. ROCHESTER, N. Y.

When inquiring specify CP A2226 — see information request blank, pgs. 2-3



## New Materials

### Paracoumarone-Indene Resin

*Rigid standardization tests for the production and selection of proper grade for specific uses assures uniformity in supply*

**Uses** — Cumar is a synthetic resin (paracoumarone-indene resin), a neutral stable resin, unique in the broad field of synthetic resins and may be used in manufacturing such products as varnish, floor tile, shoes and in printing ink and rubber compounding.

**Features** — Neutrality-acid number approximately 0.6. Non saponifiability makes it of value in coatings designed to resist alkalis and soaps. Water proofness. Durability.

**Description** — Many grades are produced in carefully classified forms developed to meet various requirements. The grades designated as "W" are high melting pale resins, particularly suitable for quick setting varnishes, inks, etc. "V" is a standard hard resin melting below "W" grade. "P" grades are high grade, light color resins, non-drying in nature, which are of lower melting point than the "V" grades. In production, conditions are so controlled that the materials vary from low-melting plastics to semi-hard bodies. There are several rubber grades as well as those identified as "X" grades, widely used where light color and high degree of purity are not re-

quired. Detailed information is available on request. This includes specifications of the various grades; characteristics-behavior with oils, solvents, resins and preparation of cumar solutions.

BARRETT DIVISION 9 Allied Chemical & Dye Corp., Dept. CP, 40 Rector St., New York 6, N. Y.

When inquiring specify CP A2228 — see information request blank, pgs. 2-8

### 100% Liquid Furfural Resin

*For gluing, cementing, sealing and bonding on various metals except some metals*

**Uses** — For gluing, cementing, sealing, bonding of most all kinds and types of materials except some metals. Saves machine and assembly time. Successfully used for wood laminates and veneers; plastics, rubber, phenolic, paper, textile and other laminated products including Masonite, Micarta, Bakelite and die stock. Casting resin with fibre filler bounces like ball is tough and resists wear.

**Description** — Being 100% liquid resin, it contains no solvents. Applied cold it sets up quickly, requires no pressure. Pot life controlled with alkali catalyst. It requires no baking, sets up and cures overnight at room temperature. Thin or thick glue line bond exceeds sheer strength of materials bonded except some metals. Not



*These solvents have helped to relieve the critical lacquer diluent shortage during the war*

Because of their high nitrocellulose tolerance and excellent evaporation qualities these solvents have enabled many lacquer and other manufacturers to keep their plants operating when they couldn't obtain toluol. They are currently available as Class A Solvents under WPB Conservation Order M-150.

★ Postwar grades of Tollac and Nevsol, having much higher solvency and nitrocellulose tolerance, will be available as soon as solvent restrictions are lifted. Keep them in mind for your postwar finishes.

**THE NEVILLE COMPANY**  
PITTSBURGH - PA.  
Chemicals for the Nation's Vital Industries

A18

BENZOL • TOLUOL • XYLOL • TOLLAC • NEVSOL • CRUDE COAL-TAR SOLVENTS  
HI-FLASH SOLVENTS • COUMARONE-INDENE RESINS • PHENOTHIAZINE • TAR PAINTS  
RUBBER COMPOUNDING MATERIALS • WIRE ENAMEL THINNERS • DIBUTYL PHTHALATE  
RECLAIMING, PLASTICIZING, NEUTRAL, CREOSOTE, AND SHINGLE STAIN OILS

When inquiring specify CP A2227 — see information request blank, pgs. 2-3

## ACETIC . . . HYDROFLUORIC HYDROCHLORIC . . . SULPHURIC safely handled in **HAVEG** plastic chemical equipment

**HAVEG** is a tough plastic made of asbestos fibres bonded together with a synthetic resin to make seamless tanks as large as 10 ft. dia., pipe, valves, fittings, towers and accessories.

**SEND** for Bulletin F-4 for complete technical data on design and application.

HN-4-45



When inquiring specify CP A2229 — see information request blank, pgs. 2-3



## MATERIALS

affected by weather or climate, cold or boiling water, weak acids and alkalis, oils, alcohol or other liquids and gases. No priorities required.

FURANE CHEMICAL SALES CO., Dept. CP, 5233 W. San Fernando Road, Los Angeles, Cal.

When inquiring specify CP A2230 — see information request blank, pgs. 2-3

### Plasticizers for Compositions of Synthetic Rubber

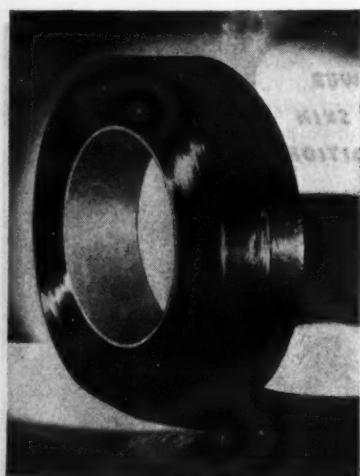
"Plasticizers," booklet (Form 5882) contains essential information on important plasticizers that are commercially available, including the "Flexol" plasticizers. Names, formulas, physical properties and specifications, charts showing the compatibilities of these plasticizers with commercial resins, and data on their performance are included. In this booklet there is also a discussion of the nature of plasticization, a summary of the requirements for effective plasticizers and a section concerning the proper choice of a plasticizer for use with various synthetic resins and synthetic rubbers. The information in this booklet should be of interest to those working with adhesives, solution coatings, and with molded, extruded, or calendared compositions of synthetic rubber and plastic materials.

CARBON & CARBIDE CHEMICALS CORP., 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A2231 — see information request blank, pgs. 2-3

### Cellophane Tubing Quickly Made Into Heat Sealing Containers

Clear cellophane; laminated over red cellophane, lends itself to packaging many products



TUBE CELLOPHANE in 1000 ft. reels

**Uses** — now used for packaging mechanical parts, its properties make it also particularly suitable for a wide range of various other products for both industrial and consumer use.

**Features** — Lends itself to high speed packaging operations providing a sanitary, attractive package. The wrap may be quickly and easily heat sealed for adequate protection.

**Description** — The reels of this

cellophane tubing in 1000 foot lengths are available in four widths: 3, 4, 6, 8, inches. The tubing consists of clear cellophane for Methods I and I-A, Type III packaging of military parts. By cutting the required lengths from the available widths, bags and containers may be made for various products. The wrapping is waterproof and greaseproof. With reels of "All-Size" cellophane red tubing in all four widths contains of a very wide range can be made.

TRAVER CORP., Dept. CP-75, 358-369 West Ontario St., Chicago 10, Ill.

When inquiring specify CP A2232 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

# NEW

MONSANTO PRODUCTS

Monsanto presents two new products for which there may be many applications yet to be discovered. The urgency of war work has prevented extensive Monsanto research on applications of these products. Dicyclohexyl is suggested as a blending agent for penetrating oil — Phenyl Cyclohexane as an odor base for perfumes and essential oils. Properties of these products, reviewed herein, may suggest applications in your industry. If so, we shall be pleased to send experimental samples. Please fill in and mail the convenient coupon, contact the nearest Monsanto office or write: MONSANTO CHEMICAL COMPANY, Phosphate Division, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Cincinnati, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

## DICYCLOHEXYL

## PHENYL CYCLOHEXANE

Colorless liquid with aromatic odor.

Colorless liquid with aromatic odor.

Boiling range, 5-95% 238.2—239.9°C.

Boiling range, 5-95% 238.9—241.1°C.

Specific Gravity at 25/25°C. 0.886

Specific Gravity at 25/25°C. 0.937

Pounds per gallon at 25°C. 7.4

Pounds per gallon at 25°C. 7.78

Refractive Index at 25°C. 1.479

Refractive Index at 25°C. 1.5205

Freezing Point 2.2°C.

Freezing Point 4.8°C.

Flash Point 215°C. (102°C.)

Flash Point 210°F. (99°C.)

Flame Point 220°F. (104°C.)

Flame Point 220°F. (104°C.)

Viscosity at 100°F. (37.8°C.) S.U.S. 34.2

Viscosity at 100°F. (37.8°C.) S.U.S. 31.2

Resistivity ohm/cc at 100°C. 48,000 x 10<sup>9</sup>

Resistivity ohm/cc at 100°C. 11,410 x 10<sup>9</sup>

Solubilities at 25°C.

Acetone • Benzene • Carbon Tetrachloride • Ether  
Water

Insoluble

**MONSANTO**  
**CHEMICALS**

SEVING INDUSTRY...WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY, Dept. PH-22, Phosphate Division,  
1702 South Second Street, St. Louis 4, Missouri

Please send, without cost or obligation, sample of:  
☐ Dicyclohexyl ☐ Phenyl Cyclohexane

Name \_\_\_\_\_

Firm \_\_\_\_\_

Your Title \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

When inquiring specify CP A2233 . . . see information request blank, pgs. 2-3

## Use ONE JOINT SEAL



- **Insoluble**—Stays put; will not wash out
- **Seals Permanently**—Fills clearances and imperfections
- **Eliminates galling, rust**—Joints easily taken apart later
- **Never hardens**—Can't crack under vibration or strain
- **Ready for use**—Packed in 1, 5 and 7 lb. cans

John Crane Plastic Lead Seal is ONE compound for ALL general services. Use it for plant maintenance and production assembly. A test tells the full story. Write us—sample will be sent immediately.

**CRANE PACKING COMPANY** 1821 CUYLER AVE. CHICAGO 13, ILL.

When inquiring specify CP A2234 — see information request blank, pgs. 2-3

## NORTON COMPANY Announces



### Pure Oxide Refractories

Norton Company announces the development of a line of high temperature, Pure Oxide Refractories. The use of the rarer oxides as raw materials for refractories now opens new fields for high temperature research. Bonded refractories have been limited for high temperature use because the bonds themselves fused between 1200° C. and 1750° C. Refractories made from the unbonded oxides can be used at temperatures close to the melting point of the oxides ( $Al_2O_3$  — 2050° C.,  $BeO$  — 2570° C.,  $ThO_2$  — above 2800° C.). Production of these pure oxide refractories is on a limited basis and is at present confined to laboratory ware, tubes and some special shapes.

NORTON COMPANY

Worcester 6, Mass.

## Norton Refractories

When inquiring specify CP A2235 — see information request blank, pgs. 2-3

## MATERIALS

### Waterproofing Rope Preservative

*Easily applied and quickly becomes dry to touch*

**Uses** — This rope preservative is for preventing rot, protecting from sunlight deterioration, shielding against chafing and increasing breaking strength.

**Description** — This preservative is for wide range of protection, wherever rope is exposed to sunlight or immersed in water. Upon application it becomes dry to touch after exposure to air for a short time. The product is very convenient to handle. Data sheet contains laboratory report on six month's exposure test comparing results achieved with this preservative and those obtained with cordage oil. Comparison is also made with loss of strength in untreated rope yarn.

SAMUEL CABOT, INC., Dept. CP, 141 Milk St., Boston, Mass.

When inquiring specify CP A2236 — see information request blank, pgs. 2-3

### Synthetic Abrasive Wheel Bond

*Replaces natural rubber providing fine service in fast cutting and grinding operations*

**Uses** — As replacement for natural rubber in bonding abrasive wheels.

**Features** — Abrasive wheels using this synthetic rubber bond gives fast cutting, long lasting service.

**Description** — Illustration shows views of "Hycarb-bonded" wheels cutting non-ferrous castings. A cross-section of 21 square inches was cut in 45 seconds. One

## NEW TURCO METHOD CLEANS AIR FILTERS IN 15 MINUTES!

**STOPS FIRE HAZARD—NO ODOR  
NON-INJURIOUS TO METAL**

With Turco's new method of cleaning air filters, no special equipment or skilled help is needed. A solution of Turco Aktiv is used in a cold tank. The loosened dirt and grease are easily flushed away with cold water hosing. Filter is dried in stream of air. The Turco Aktiv method has been tested and approved by leading air filter manufacturer.

For complete data  
write Dept. 000



TURCO PRODUCTS, INC. Main Office and Factory: 6135 S. Central Ave., Los Angeles 1, Offices and Factories: 1608 Henderson St., Houston 10, Tex.; 125 W. 45th St., Chicago 9, Offices and Warehouses: All Principal Cities

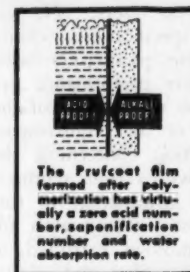
When inquiring specify CP A2237 — see information request blank, pgs. 2-3

## Corrosion Proofing

IN SOME OF AMERICA'S LARGEST PLANTS

- \* "Prufcoat on floors and pump supports in sulfuric acid concentration plant — good after two years."
- \* "Entire concrete building coated with Prufcoat — no trace of failure due to blistering, peeling or chipping in over five years."
- \* "Prufcoat on concrete piers and steel beams subjected to muriatic acid fumes — no deterioration in over two years."

\* Actual Prufcoat reports. Names of these plants upon request.



The Prufcoat film formed after polymerization has virtually a zero acid number, saponification number and water absorption rate.

Prufcoat Protective Coatings are applied by brush by your own maintenance crew to any surface — concrete, steel and masonry structures, tank cars and trucks, chemical handling equipment, tanks and ventilating systems, etc. The resultant coating gives Positive Protection against acids, alkalis, water and weather. No matter what your corrosion-proofing problem may be, chances are Prufcoat can show you a performance-proved treatment. Write today for folder.



Prufcoat Laboratories Incorporated · 63 Main St., Cambridge 42, Mass.

When inquiring specify CP A2238 — see information request blank, pgs. 2-3



## SULPHO HAND CLEANER

will not defat the skin. It has been specially formulated for workers encountering solvents, and skin drying chemicals. Send for FREE booklet.

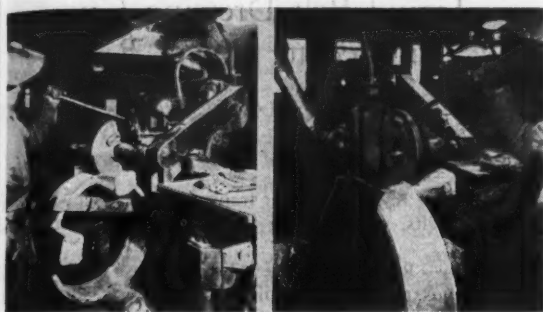
**WEST** Company

12-16 WEST ST. · LONG ISLAND CITY 1 · N. Y. · DEPT. 6

When inquiring specify CP A2239 — see information request blank, pgs. 2-3



## MATERIALS



### "HYCAR-BONDED" WHEELS CUT GATES, RISERS

test indicated that these synthetic-bonded wheels nearly doubled output of natural-rubber bonded wheels in cutting manganese bronze castings. Superior performance on aluminum bronze castings and bar steel is also impressive as well as in grinding metal surfaces to close tolerances. The producer of this "Hycar" synthetic rubber makes no rubber products itself. Information concerning these applications on request.

HYCAR CHEMICAL CO., Dept. CP, 333 So. Main St., Akron, Ohio.

When inquiring specify CP A2240 — see information request blank, pgs. 2-3

### Plastic Finishes to Meet Conditions of Dampness, Rust and Corrosion

Illustrated folder describes plastic finishes to meet conditions of dampness and rust and corrosion in process plants and those producing food products. For example "Celloplastic Wet or Dry" can be applied over wet or dry surfaces. This is a hard, water resistant, fume resistant enamel. There is also a rust-proofing finish, which may be used wet or dry. Coatings for machinery are available in cream and gray for use in providing suitable protection. For excessive acid conditions a transparent coating is available. Another special finish is made for stacks. Copies of this folder on request.

CELLO-PLASTIC CHEMICAL CO., Dept. CP, Pittsburgh 4, Pa.

When inquiring specify CP A2241 — see information request blank, pgs. 2-3

### Laminating Wax For Food Cartons

*Low moisture transmission; grease resistance*



**Uses** — For use in producing moisture-resistant containers.

**Features** — Excellent laminating properties. Available in quantities without allocation.

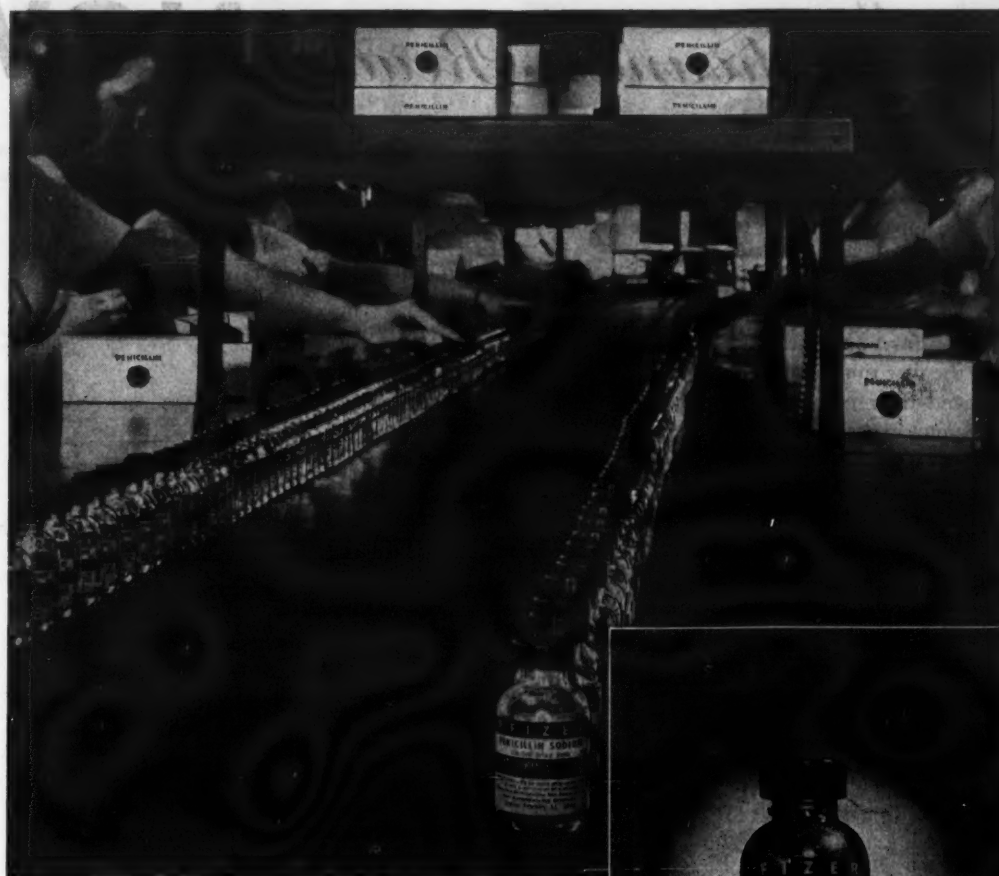
**Description** — Provides low moisture

transmission and good grease resistance qualities. It is a straight petroleum wax, non-resinous, light in color with a melting point of 160-165° F. Suitable for the production of food containers, paper boxes and grade "C" Ordinance Wrap. Known as Witco Hamp Wax No. 62.

WITCO CHEMICAL CO., Dept. CP, 435 N. Michigan Ave., Chicago, Ill.

When inquiring specify CP A2242 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



## 1,000,000,000,000 ONE TRILLION UNITS FOR THREE MILLION PATIENTS

On Feb. 20, 1945 a bottle containing the trillionth unit of Penicillin was delivered by the Pfizer package assembly line. At an average rate of 300,000 units per patient this means that Pfizer Penicillin has been made available for approximately three million soldier and civilian patients suffering from infectious diseases.

*The World's Largest Producer of Penicillin*

## Chas. Pfizer & Co., Inc.

MANUFACTURING CHEMISTS • ESTABLISHED 1849

81 MAIDEN LANE, NEW YORK 7, N. Y. • 444 W. GRAND AVE., CHICAGO 10, ILL.



• CHEMICALS FOR THOSE WHO SERVE MAN'S WELL-BEING •

# Furan Compounds • Ready • NOW

Perhaps you are one of the many research chemists who have wanted to try one of the Furan compounds, but couldn't afford the time required to search the literature, set up the apparatus and go through the preparation yourself.

Perhaps you did not know (and that's probably our fault) how many of the Furan chemicals are readily available to you for your research work.

Here, for the first time, is a list of most of the Furan compounds and their common properties—ready and waiting for your experiments. All you have to do is place an order.

## COMMERCIALLY AVAILABLE

COMPOUND Chemical Formula	Mol. Wt.	M.P. °C	B.P. °C (760 mm)	Solubility W A E
Furfural $C_5H_4O \cdot CHO$ Yellow liquid	96.08	-36.5	161.7	s s oo
Furfuryl Alcohol $C_5H_4O \cdot CH_2OH$ Amber liquid	98.10	-31	171 (750 mm)	oo oo oo
Hydrofuranide $(C_4H_3O \cdot CH)_2N_2$ Light brown crystals	268.26	117	250 dec.	i s s
Tetrahydrofurfuryl Alcohol $C_5H_8O \cdot CH_2OH$ Colorless liquid	102.13		170 to 180	oo oo oo
Tetrahydrofurfuryl Oleate $C_5H_8O \cdot CH_2OOC(CH_2)_7CH_3$ Yellow oily liquid	366.5		200 to 285 (16 mm)	i s s

## EXPERIMENTAL QUANTITIES

*Ethyl Furfylacrylate $C_5H_4O \cdot CH_2CHCOOC_2H_5$ Colorless liquid	166.17	24.5	132 to 133 (18 mm)	i s
Furan $C_4H_4O$ Colorless liquid	68.07		32 (758 mm)	i s s
*Furfural Acetone $C_5H_4O \cdot CH_2COCH_3$ Red brown liquid	136.14	37 to 40	229 dec.	i s s
*Furfural Acetophenone $C_5H_4O \cdot CH_2COCH_3$ Yellow, oily crystals	198.21	39 to 42	178 to 181 (8 mm)	i s s
*Furfural Diacetate $C_5H_4O \cdot CH(OOCCH_3)_2$ Colorless crystals	198.17	50 to 51	220	i s s
*β-Furfuraldoxime $C_5H_4O \cdot CH:NOH$ White crystals	111.10	68 to 90	201 to 208	sl.s.c.s s
*Furfuryl Acetate $C_5H_8O \cdot CH_2OOCCH_3$ Colorless liquid	140.13		84 to 85 (25 mm.)	i s s
*5-Furfural-2-Thiohydantoin $C_5H_4O \cdot CH_2C_2H_4N_2OS$ Green crystals	194.20	250 to 252 (247 dec.)		
*Furil $(C_4H_3OCO)_2$ Yellow needles	190.10	161 to 162		i s s
*α-Furil Dioxime $(C_4H_3O \cdot C:NOH)_2$ Light tan powder	220.18	164 to 168		s s

COMPOUND Chemical Formula	Mol. Wt.	M.P. °C	B.P. °C (760 mm)	Solubility W A E
*Furoamide $C_5H_4O \cdot CONH_2$ White powder	111.10	141 to 142	(some subl. 100°)	
Furoic Acid $C_5H_4O \cdot COOH$ White Crystals	112.03	131 to 132		s s s
*Furoin $C_5H_4O \cdot CHOHCOC_2H_5O$ Light brown needles	192.16	135 to 137		i s s
*Furoyl Chloride $C_5H_4O \cdot COCl$ Colorless liquid	130.53	-2 to 0	176	dec s s
*Furylacrolein $C_5H_4O \cdot CH:CHCHO$ Yellow crystals	122.12	51	200	i oo s
*Furylacrylamide $C_5H_4O \cdot CH:CHCONH_2$ Light tan crystals	137.13	167 to 168		i
*Furylacrylic Acid $C_5H_4O \cdot CH:CHCOOH$ White crystals	138.12	141	226; 117 (8 mm)	i s s
Methyl Furan $C_5H_6O \cdot CH_3$ Colorless liquid	82.10		62 to 63	i s s
Tetrahydrofuran $C_4H_8O$ Colorless liquid	72.10	-65	66	oo oo oo
*Tetrahydrofurfuryl Acetate $C_5H_8O \cdot CH_2OOC \cdot CH_3$ Colorless liquid	144.17		84 to 86 (14 mm) 91 to 92 (16 mm)	i s s
*Tetrahydrofurfuryl Adipate $(C_5H_8O \cdot CH_2OOC)_2$ Yellow liquid	314.37	5 to 15	200 to 207 (1.5 mm)	i s s
*Tetrahydrofurfuryl Benzoate $C_5H_8O \cdot CH_2OOC C_6H_5$ Colorless liquid	206.23		143 to 145 (3 mm)	i s s
*Tetrahydrofurfuryl Palmitate $C_5H_8O \cdot CH_2OOC \cdot (CH_2)_{14}CH_3$ Colorless liquid	340.53		195 to 19 (1.5 mm)	i s s
*Tetrahydrofurfuryl Propionate $C_5H_8O \cdot CH_2OOC \cdot C_2H_5$ Colorless liquid	158.19		100 to 102 (18 mm)	i s s
*Tetrahydrofurfuryl Salicylate $C_5H_8O \cdot CH_2OOC \cdot C_6H_4OH$ Colorless liquid	222.23		131 to 133 (2 mm)	i s s

W = Water, A = Ethyl Alcohol, E = Diethyl Ether

NOTE: Substituent groups in the Furan Ring are in the "2" position unless otherwise indicated.

Compounds marked \* may be purchased directly from the Eastman Kodak Company, Rochester, New York. Samples of the others are available to those who see in them a possible application to their problems. Company letterhead should be used when writing.

Further information on Furfural and other Furan chemicals will be furnished upon request. In asking for information, please give us as many details about your problem as you can. We can then give you more specific and pertinent information about the Furans as applied to your particular needs.

## The Quaker Oats Company

1930 BOARD OF TRADE BLDG.  
141 W. JACKSON BLVD., CHICAGO 4, ILLINOIS

## CHEMICALS DEPT.

When inquiring specify CP A2243 . . . see information request blank, pgs. 2-3

## MATERIALS

### Liquid Belt Dressing Gives Immediate Power Rise

Tests show 15% increase in transmission from rating upwards; pours at 32° F.; particularly suitable where steam and water are a factor

Uses — For restoring power transmission capacity to transmission belts, and keeping belts in good condition and length.

Features — Results are achieved without use of pitch, rosin or resinous materials, petroleum by-products, soap, acids, alkalis, or other ingredients harmful to belting. Pours readily at freezing temperature. Does not cake or gum on pulleys and belts and is especially adaptable where steam and water are bothersome.

Performance — Test was made on two 2 in. belts cut from one G & K research belt; belt rating 9.2 HP; actual rating 10.5 without dressing after being broken in for 24 hours. After dressing applications belt dressed with this product showed immediate power increase up to 11.2 HP, an increase of .7 HP as contrasted to other belt with other dressing which showed .5 HP increase or a total of 11 HP. Power rise is immediate.

Description — Repeated tests indicate improvement of 15% to 20% increase in transmission from rating upwards with a greater percentage rise for belts which are pulling under their rating. Although carrying the maker's "Grako" trade name this is an entirely new formula and is so marked on labels. Complete information on performance data and applications on request.

GRATON & KNIGHT CO., Dept. CP, Worcester, Mass.

When inquiring specify CP A2244 — see information request blank, pgs. 2-3

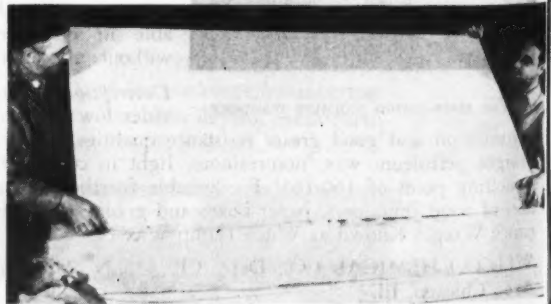
### Easy Molding Plastic, Non-Toxic, Flame and Shock Resistant

Utilizes asbestos type filler and phenolic resins to meet stringent requirements

Uses — This flame resistant plastic was a development for Navy use providing properties of fire — plus shock-resistance and easy molding properties.

Features — Relatively fire-resistant and non-toxic, good electrical properties, high impact strength and easy moldability.

Description — The product withstands fire and its resultant toxic effects during battle action, as well as the concussions and vibrations of battle-wagon broadsides. In working on this development, it was found that it was impossible to use any appreciable amount of organic filler



INSPECTING SHEET OF "TEXTOLITE"

CHEMICAL PREVIEW



## MATERIALS

in a laminated plastic or molding compound to fit these specifications, regardless of what kind of resins were used, without obtaining a material that gave off toxic gases fatal to human beings, depending on several factors including size of area effected and duration of the burning. The chemists turned to the use of inorganic type of filler materials such as asbestos. Asbestos was finally selected as it embodied all the specifications necessary. The researchers then bound the asbestos fibers together with certain phenolic resins to make a series of plastics with various shock resistances. Glass, the other inorganic material, is used in another plastic development. This is used for panel boards. It is made by bonding layers of glass cloth together with melamine resin in high pressure process.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A2245 — see information request blank, pgs. 2-3

### Data on "Pentalyn" Resins and Applications in Paint & Varnish Manufacture

A new technical bulletin, "An Exclusive Varnish-Making Development," evaluating Pentalyn resins and their applications in the varnish and paint industry, has recently been issued. The basic structures of the Pentalyn resins and ester gum are illustrated in the booklet which also contains comparative tables on the softening point, heat stability, oxidation resistance of the two materials, and typical Pentalyn varnish formulations. Complete information on the four Pentalyns, A, G, M, and X, covering their physical and chemical properties, is provided, and their comparable melting point, color, acid number, specific notation and gravity, hydroxyl content, thiocyanogen value, iodine number, refractive index, and viscosity are listed for the information of varnish makers. The company's chemists, in checking the properties of the four Pentalyn resins, discovered that, regardless of the drying mechanism used, the Pentalyns will make quick-drying varnishes when used with most of the soft-drying oils available.

HERCULES POWDER CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A2246 — see information request blank, pgs. 2-3

### Cold Setting Plastic Filling Material for Electrical Work

*Liquid resin mixed with setting agent forms rubbery solid insoluble in water, acids*

**Uses** — As a filling material for junction boxes, stuffing boxes, pot-heads and similar void spaces encountered in electrical work.

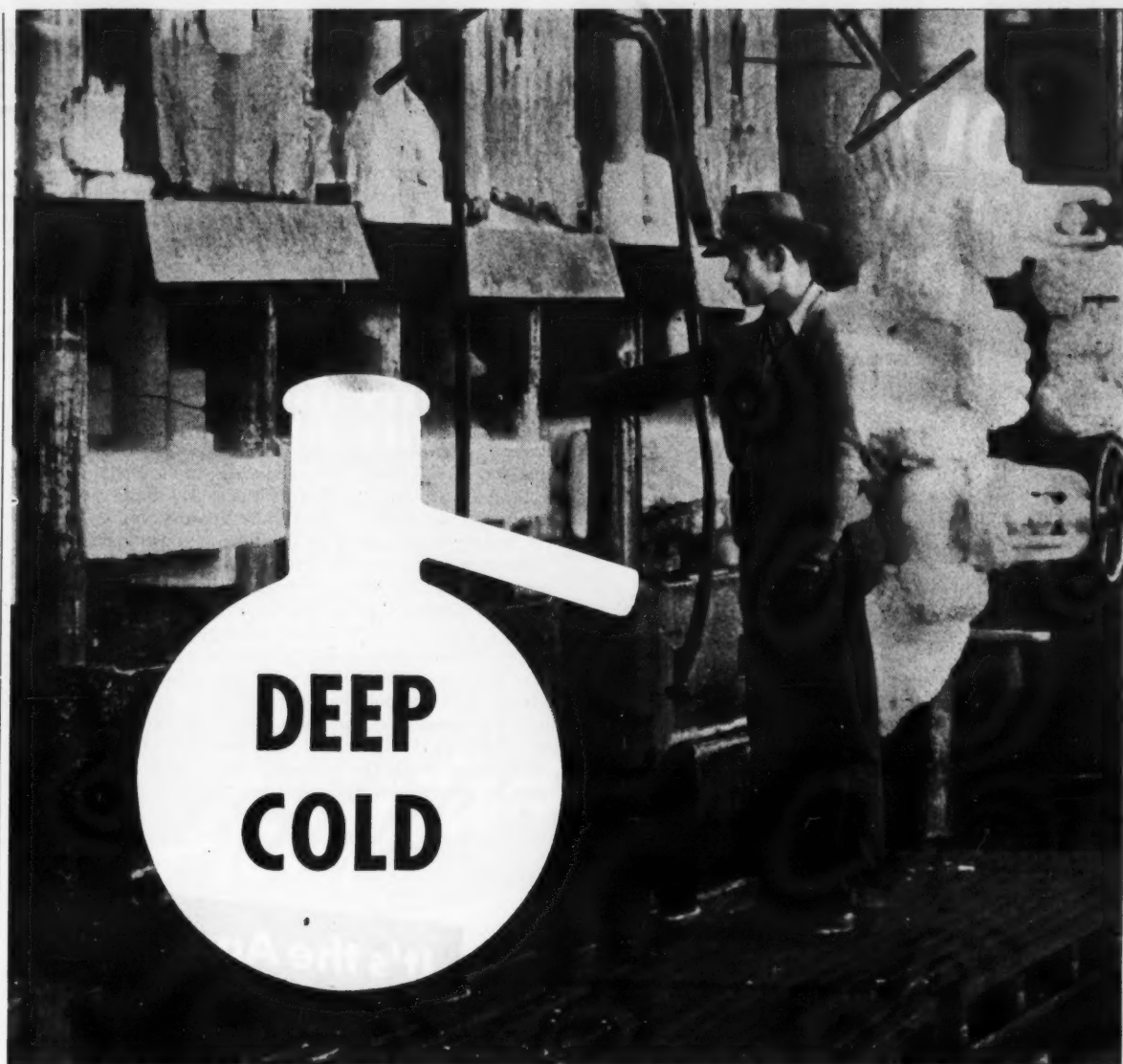
**Features** — Although it will adhere to metal, it can be stripped away cleanly to allow repairs to terminals and cable strips.

**Description** — Originally made for filling junction boxes on marine cable installations, it may be used in a number of instances where a free flowing material which will set to form a rubbery solid is desired. This liquid resin, "Cardolite" 5616 is mixed with the maker's setting agent prior to use. Approximately four hours after mixing the two ingredients will gel at room temperature to the point where flow is no longer possible, and after several days, the end product is a tough rubbery mass which will not flow under heat nor become brittle in the cold. The set compound is insoluble in water, oil, acids and alkalis.

IRVINGTON VARNISH & INSULATION CO., Dept. CP, 6 Argyle Terrace, Irvington 11, N. J.

When inquiring specify CP A2247 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



• The Dry Ice Plant of Wyandotte Chemicals Corporation at Wyandotte, Michigan, is the world's largest. Each of its huge ice presses exerts a pressure of one million pounds. This, applied to carbon dioxide "snow," produces a 240-lb. cake of dry ice—140° colder than ordinary ice. Some of these cakes are seen ready to leave the presses.

## WYANDOTTE CHEMICALS CORPORATION

ONE OF THE WORLD'S GREAT PRODUCERS OF CHEMICALS

SODA ASH  
CAUSTIC SODA  
BICARBONATE OF SODA  
CALCIUM CARBONATE

CALCIUM CHLORIDE  
CHLORINE  
HYDROGEN  
SODIUM ZINCATES

AROMATIC INTERMEDIATES  
DRY ICE  
Other Organic and  
Inorganic Chemicals

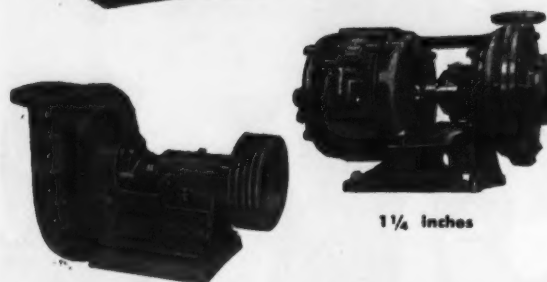
WYANDOTTE CHEMICALS CORPORATION  
MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN



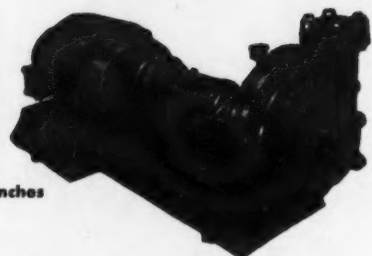
VITAL TO VICTORY TODAY—READY TO WORK FOR A GREATER TOMORROW

When inquiring specify CP A2248 . . . see information request blank, pgs. 2-3

# OLIVITE ACID-HANDLING PUMP



4 inches



2 inches

- Protected from chemical attack
- Protected from stuffing box trouble
- Protected from shaft corrosion

First thoughts on an acid pump are PROTECTION! Are contact parts fully protected? Is the pump tight? Is it strong? Can it handle hot as well as cold solutions?

With the Olivite Pump the answer is YES — 100%.

Bulletin 308 gives the details . . . details of the firm bonding of OLIVITE or OLIVEX to sturdy metal parts . . . of the sleeve-protected shaft . . . of the floating stuffing box which forces the packing to do its work properly. Yes — the Olivite Pump is certainly durable. It's highly efficient. And it's popular as evidenced by the hundreds of users who after trying some have ordered many additional units.

We suggest that you try OLIVITE Pumps in your plant . . . on one of your tough jobs. Write us fully about operating requirements.

OLIVER  
UNITED FILTERS  
INC.

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11  
California

Canada: Sales & Manufacturing Representative  
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When inquiring specify CP A2249 — see information request blank, pgs. 2-3

## ★ IDEAS ★

Industrial ingenuity constantly hatches new ideas, many of which can be applied to similar problems in other plants. The Editors have selected these ideas and developments because of their interest and possible application in specific plant problems. If you would like more information on any of these, write direct to the manufacturers.

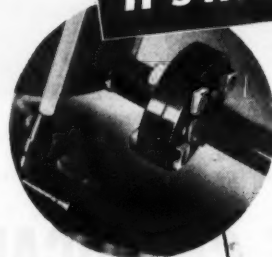
### Removal of Restrictions Opens Way for New Uses of Lithium

*Postwar production may be large enough to  
effect great reduction in price*

Recent removal of priority restrictions on lithium opens the way for many new industrial applications of this lightest of all metals. Before the war lithium was used chiefly in metallurgy. Its affinity for oxygen, as well as for hydrogen, its ability as an alloying constituent, and its value as a scavenger for non-metallic impurities have long been recognized. Wartime research has broadened knowledge of lithium's possibilities. Production has been increased many times to satisfy strategic war requirements. These developments, aided by removal of restrictions, open new post war horizons for its use. Lithium is a soft silvery metal, about one half as heavy as water, — one fifth the weight of aluminum. It is the lightest in weight of all metals, in fact of all solid bodies, and is one of the most active of all the elements. It never occurs in a free state in nature. Minerals containing lithium are distributed

throughout the world and it occurs more abundantly than tin, lead or zinc. The world's richest deposits are located in South Dakota and North Carolina, where a lithium bearing ore, spodumene is mined. Lepidolite, an ore containing lithium, potassium, aluminum, fluorine, silicon, oxygen and hydrogen is another source of lithium. The main deposits of this ore are in North Dakota, New Mexico, Colorado, and California. Some of the jobs which lithium, as a metal, alloy or in the form of its various compounds performs in war industry are: It removes gases and impurities from copper, tin and silicon bronzes, producing superior castings. It removes final traces of nitrogen and other gases, such as helium and argon. It is an essential compound in fluxes for welding aluminum in airplane construction and for making magnesium castings for airplane parts. It makes possible the use of lighter weight storage batteries. It enables human beings to live longer and more comfortably in confined quarters or closed compartments. It enables lubricants to flow freely at extremely high and at extremely low temperatures. Lithium now costs \$12.50 a pound on government orders and commercially in quantities of 10,000 pounds and up. In smaller commercial quantities it still

### It's the Answer...



TO MANY CHEMICAL  
PIPING PROBLEMS

**SARAN\***

THERMOPLASTIC  
PIPE AND FITTINGS

Saran Pipe and Fittings have many uses in handling the flow of chemicals for production plant or laboratory. Saran is extremely resistant to acids and alkalis . . . It is unaffected by water or by heat up to 175°. Saran Pipe meet standard pipe specifications . . . yet weighs only 1/4 as much as iron pipe. Ask for full details . . . Write us today!

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Processors of Synthetic  
Rubber and Plastics  
Sheets • Extrusions  
Molded Parts

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## PRODUCT OF THE MONTH



**SOLIDS HANDLING  
PUMP**, rated at 3000  
gpm, 70 ft head, is  
handling 17 to 20%  
solids in an Indiana  
cool plant. This 8 x 10  
in. unit is pumping  
the water to a settling  
cone above.

MILWAUKEE, WIS. — Allis-Chalmers announces a new line of Pumps designed for efficient solids handling, water recirculation, sludge disposal. To see how your pumping problems can be solved economically through low first cost, longer parts life, reduced upkeep, get full information by writing for B6381 now.

**ALLIS-CHALMERS • MILWAUKEE • WIS.**

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## IDEAS

sells at pre-war price range of \$15-\$20 per pound. There is a prospect that post-war production will be large enough to justify a price reduction to as low as \$5 per pound. Development of new metal products having special properties will expand the use of lithium alloys. Lithium hardens and toughens lead, and at the same time increases its strength. Lithium is a convenient grain refiner for many metals and alloys, such as lead, zinc, aluminum and certain copper alloys. Important developments are nearing conclusion concerning the industrial application of lithium in cast iron, carbon steels, and stainless steels. A well known storage battery depends upon lithium salts to stabilize the amperage. One of the most promising uses for lithium is in air conditioning, particularly to control the moisture content of the air. As practically no lithium salts are consumed in this application, upkeep cost is extremely low. Its use in industrial soaps to improve their cleansing power under adverse conditions is also suggested. Another use is in glass making to increase strength and weather resistance of some kinds of glass. Lithium is extracted from the ore by chemical processes, and usually obtained as the carbonate from which other lithium salts for industrial use are manufactured. Lithium metal is produced by fused electrolysis, similar to those used in the production of aluminum and magnesium. (Data based on releases from Lithalloys Corp., 444 Madison Ave., this country's largest producer of lithium metal and alloys and quotations from interviews with Dr. Hans Osberg, vice-president of the organization.)

## Safety in Using Sample Thieves

*Suggestions for eliminating breakage of carboy bottles where thieves have been dropped into carboy when sampling*

A recent questionnaire in Chemical Safety (Issued monthly by National Safety Council brought forth a number of practical suggestions for eliminating carboy breakage where employees have dropped thieves. Some of these are as follows. One effective procedure in reducing breakage of thieves when sampling shallow steel tanks employs a three inch piece of  $\frac{3}{4}$ " I.D. rubber tubing, slipped about  $2\frac{1}{2}$ " over the  $\frac{3}{4}$ " O.D. thief tube. The  $\frac{1}{2}$ " projecting beyond the end of the glass thief effectively acts as a bumper without effecting the operation of the thief tube. A rubber stopper, larger than the carboy mouth and bored to fit the thief tightly, could be so placed as to prevent the thief from touching the bottom thus acting as a bumper to prevent breakage in case the thief is dropped. Tubing or pipe made with certain plastic materials may be used successfully to make thieves that are resistant to various solvents and acids. Other suggestions are (1) Depending on the product to be sampled, protect the bottom of the thief with a rubber connection. Koroseal is said to be suitable for nitric acid, butyl rubber for sulfuric, plain rubber for muriatic. (2) It is also suggested that a thief be secured with a bulge blown near the upper end and a large rubber washer placed on the thief so that it will not touch the bottom of the carboy while sampling. In this way the product is not contaminated. Of course, it will be understood that depending on the size, shape and depth of the carboy, the thief with the washer must be varied so as to afford the protection desired. The possible breaking of the thief, allowing the glass to drop into the carboy is of course, a consideration in employing this idea.

JULY - AUGUST, 1945

# ..is based on Performance

● Illustrated herewith are some—but not all—the Brown Sectional Heat Exchanger installations made—one after another—by just one concern—based on the outstanding performance of earlier installations. Brown Sectional Hairpin Exchangers with their high heat transferring efficiency, and trouble free operation are available in a number of standard sizes,—with different numbers and depths of fins to meet different requirements. The sections mount easily into tight, compact "banks," assure positive inspection and easy maintenance,—meet every requirement of the engineering, operating and maintenance departments. Fully descriptive literature, recommendations, and quotations furnished promptly.

## THE BROWN FINTUBE CO.

119 FILBERT STREET • ELYRIA, OHIO

MANUFACTURERS OF INTEGRALLY BONDED FINTUBES AND FINTUBE HEAT EXCHANGERS

—When inquiring specify CP A2252 . . . see information request blank, pgs. 2-3—

TO CUT

# Precision threads

ON 1" TO 2" PIPE

more quickly  
and easily....



use the self-contained, semi-automatic  
**RIGID No. 65 R**



Workholder sets to pipe size instantly.



Dies set to pipe size in 10 seconds.

● It's ready in a jiffy to cut perfect threads on 1", 1 1/4", 1 1/2" or 2" pipe—1 set of dies does it, and they stay in the threader, can't get lost. You set the 65R to pipe size in 10 seconds. You set the mistake-proof workholder instantly without bushings. You cut threads rapidly, without effort. You save time and work with this rugged steel-and-malleable precision tool—it's one you'll enjoy owning and using. Demand is ahead of supply just now—but keep asking your Supply House.

## RIGID

**WORK-SAVER PIPE TOOLS**  
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP A2253 — see information request blank, pgs. 2-3

## IDEAS

### Cleaning Oil Cooled Transformers

*Cleaning with solution with simple equipment and a minimum of time and labor; hot air blower used to dry out tanks*

Under present day operating conditions, particular attention may well be paid to oil cooled transformers, for many are operating at peak loads over prolonged periods of time. Sludge deposits in transformers can cause serious difficulties for if the transformer is allowed to operate at excessive temperatures, which will result from poor heat transfer, coil insulation may rapidly lose its mechanical and insulating properties. This causes even heavier sludging and still poorer cooling. In severe cases, a short circuit may result. The present practice in some plants is to clean the tubes by circulating transformer oil through them under pressure. However, thorough cleaning can be done with comparatively simple equipment at a minimum of time and labor, including the removal of the deposits which adhere to tubes and tank surfaces. When inspection indicates that a transformer requires cleaning, it is brought into repair shop set up on wooden blocks and the top is removed. The windings are lifted part way out of the tank, and suspended in this position. The oil from the transformer is forced through a filtering medium and is pumped over the windings under pressure. After draining, the windings are then taken to another section of the shop where, after further cleaning and wiping, they are inspected and any repairs necessary are made. The oil remaining in the transformer is drained off and the tubes and tanks are then cleaned. A heavy duty alkaline material capable of emulsifying and loosening oil sludge deposits is

TO PUT "SPOTS OF HEAT"  
INTO ANY MACHINE  
G-E CARTRIDGE  
HEATERS

(One of the popular G-E midget heaters)\*

Use these convenient electric heaters to build localized spot-heating into processing machinery, such as embossing presses, die blocks, sealing machines, glue pots, etc. Easily installed—simply drill a hole in the part to be heated, insert the cartridge heater, and connect into the nearest outlet. Unusually durable, they give long efficient service. Temperatures up to 1200 F. Sizes from 1 1/2 to 8 1/2 inches long. **PRICES FROM \$2.20**

### SEND FOR GED-650

Here, in one small book, are the answers to the hundreds of small heating problems that arise daily in industrial plants to puzzle electrical engineers, superintendents, foremen, owners, and maintenance men. **General Electric Co., Schenectady 5, N. Y.**

\*OTHER G-E HEATERS: CARTRIDGE HEATERS • HEATING CABLE • CONVECTION HEATERS • CALROD IMMERSION HEATERS • STRIP HEATERS • CALROD HEATERS • FIN CALROD HEATERS

**GENERAL ELECTRIC**

When inquiring specify CP A2254 — see information request blank, pgs. 2-3

# IMPORTANT

BECAUSE IT PROTECTS



Industry is  
meeting the  
challenge of  
America's mass  
production schedule

... but production  
alone is of little value unless the material  
reaches its destination in **UNDAMAGED,  
USABLE CONDITION!**

*Signode Steel Strapping Protects*

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STEEL STRAPPING CO.

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When inquiring specify CP A2255 — see information request blank, pgs. 2-3

Improved 3-Purpose  
Fire-Hose Nozzle  
by GRINNELL

**FLAMEBUSTER**  
"KILLS OIL FIRES FAST"



Underwriters' Laboratories Approved.

**FLAMEBUSTER** permits application of water in the form best suited for quick control, according to the nature of the fire —

**1. LOW VELOCITY SPRAY...** for extinguishing stubborn fires in light, flammable liquids. Projected at a wide angle by the unique Grinnell spray tip on a 4' or 10' applicator. The spreading cone of evenly distributed, fine spray, applied directly over blaze, puts out flames quickly, with minimum water consumption.

**2. HIGH VELOCITY SPRAY...** for general fire fighting and for extinguishing fires in heavier oils by emulsifying the blazing oil with a driving spray of water, rendering it incapable of burning. Protects fireman approaching blaze.

**3. SOLID STREAM...** for rooting out deep seated fires and for projecting a volume of water a considerable distance. For fighting fires in electrical apparatus, a long-range, non-conducting spray is substituted for the solid stream.

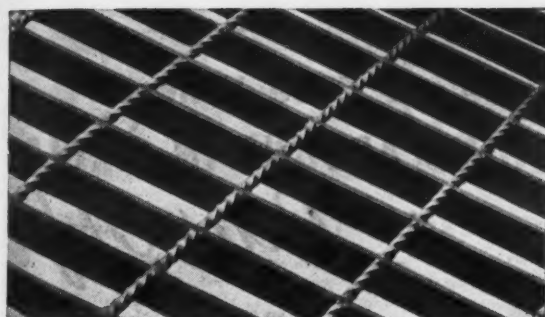
**FLAMEBUSTER'S** single large orifice in high velocity tip and scroll design in low velocity tip prevent clogging. Disassembly is easy.

Grinnell Company, Incorporated,  
Executive Offices,  
Providence 1, R. I.  
Branch offices in principal cities.

**GRINNELL**  
ENGINEERED FIRE PROTECTION

When inquiring specify CP A2256 — see information request blank, pgs. 2-3





## ONE PIECE

### ...ELECTROFORGED STEEL CONSTRUCTION

- ★ Easy to maintain—paint reaches entire surface.
- ★ Open to maximum area of light and air.
- ★ Self-cleaning—no sharp corners to clog with dirt.
- ★ Economical and easy to install.

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 NEW YORK CHICAGO PHILADELPHIA BIRMINGHAM WASHINGTON

## BLAW-KNOX GRATING

When inquiring specify CP A2257 — see information request blank, pgs. 2-3

## REMOVES...RECOVERS...from waste water



### LINK-BELT LIQUID VIBRATING SCREEN— the Efficient Method of Separating

liquids and solids. It removes objectionable solids from waste water, avoiding stream pollution. It recovers valuable solids, such as beet pulp (shown on screen in the picture) which is bagged and sold as cattle feed — for which it is ideal. It recovers both solids and oils in processing soy beans, copra, cottonseed, etc. Packing plants and canneries find this the ideal, long-lasting screen. It will pay you to investigate. WRITE for Booklet No. 1977—no obligation.

**LINK-BELT COMPANY**  
 2045 W. Hunting Park Ave., Philadelphia, 40.  
 Offices in principal cities 9595-A

## LINK-BELT Vibrating SCREENS

When inquiring specify CP A2258 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## IDEAS



Running cleaning solution through tubes with hose inserted in tube openings

employed. A solution of this material is prepared in a tank heated by a kerosene immersion burner and is delivered to the transformer by means of a centrifugal pump. Two garden type hose attached to a Y connection at the pump carry the solution to the top of the transformer. The hoses are inserted in the tube openings and the solution under pressure is forced through them, running out at the bottom of the transformer tank. A second pump returns the solution to the supply tank where it is reheated and again circulated. The transformer shown in the illustration is a 4000 KVA model, contains 234 two inch tubes, a total of almost one half mile of tubing to clean. In cleaning, each tube was circulated four minutes. The condition of the cleaning fluid showed a large amount of sludge removed. The top half of the sample bottle consisted of heavy black jelly of emulsified oil while the bottom was dark with foreign particles in suspension. Then a new solution was made up and circulated through each tube for three minutes. The walls of the transformer tank were cleaned by spraying the cleaning solution over them. After rinsing with hot water a piece of white cloth attached to a wire to determine thoroughness of cleaning indicated that the tubes had been restored to splendid condition. A hot water rinse permits tubes to dry down of their own heat, but to make absolutely certain that all moisture has been removed the transformer is turned upside down on a hair felt mat. A hot air blower is connected through a manhole in the floor and the tank is hot air dried for eight hours. Then the tank is turned right side up and windings replaced. A job like the ones described here takes 60 man hours. The same procedure may be employed on all sizes right down to 75 KVA models which can be cleaned in three hours. (From Oakite News Service, Oakite Chemical Co., 22 Thames St., New York 6, N. Y.)

### Chart Shows Proper Methods of Sealing Cartons With Gummed Tape for Sealing Line Protection

Large wall chart shows proper method of sealing cartons with sealing tape with no waste or sacrifice of "sealing line protection." It shows in eight steps how sealing lines of cartons should be protected. Copies of "Green Core Tape" Sealing Chart on request.

MID-STATES GUMMED PAPER CO., Dept. CP, 2515 A. Damen Ave., Chicago 8, Ill.

When inquiring specify CP A2259 — see information request blank, pgs. 2-3

## Accurately controlled heat for PROCESS KETTLES

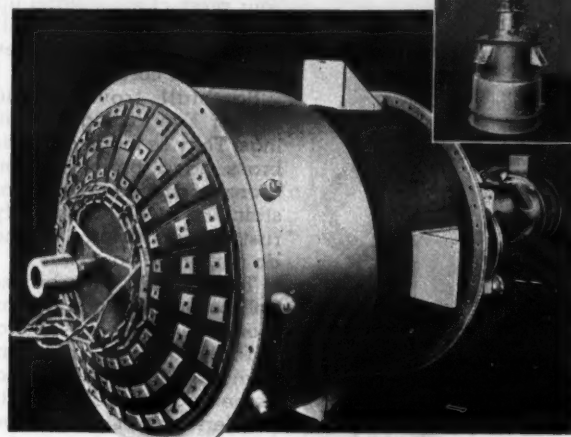
with

## CHROMALOX

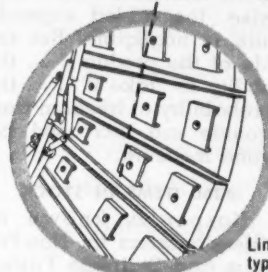
SEGMENT-TYPE

## Electric Strip Heaters

Kettle and agitator as it appears in operation.



Process kettle with shield removed to show segment heaters clamped around bottom.



Line detail of segment-type heater and clamps.

- Efficient
- Economical
- Easy to install

The process kettle (illustrated above) is equipped with CHROMALOX Segment-type Electric Strip Heaters. These heaters are formed and clamped to the tank bottom thereby assuring rapid heat transfer.

The use of CHROMALOX Heaters results in a kettle which can be installed anywhere. With CHROMALOX Electric heat—various processing temperatures are accurately controlled.

Investigate the many advantages of CHROMALOX Electric Heaters. Your CHROMALOX Application Engineer will gladly provide full details on your particular requirements.

**Edwin L. Wiegand Co.**  
 7517 Thomas Boulevard  
 PITTSBURGH 8, PA.

### Want More Know-How?

Write for "100 Ways to Use Electric Heat" booklet, catalog and address of nearest CHROMALOX Application Engineer.



**CHROMALOX**—Electric heating at its Best

When inquiring specify CP A2260 — see information request blank, pgs. 2-3

## DEFY CORROSION at small cost

### BUILD YOUR PRODUCT WITH EVERLASTING FASTENINGS

Your product must stand up in use. In many cases it will meet the destructive forces of rust and corrosion.

Foretell trouble! Use Harper Everlasting Fastenings. They're made of either brass, naval bronze, silicon bronze, copper, Monel or stainless steel. They defy rust and corrosion . . . and do it at small cost.

To be sure . . . a bronze bolt costs more than a common steel one . . . but not much more. In most instances, constructing a machine or an instrument with non-ferrous or stainless fastenings adds only pennies to the total cost. Percentage wise, the added expenditure is negligible. But the life of the product . . . the ability to "take it" . . . the probability of freedom from trouble are increased beyond measure.

#### 4360 ITEMS IN STOCK

Harper is known as "Headquarters for Non-Ferrous and Stainless Fastenings" . . . carries large and complete stocks of 4360 different items and is continually adding others. Write for 1945 Catalog.

#### THE H. M. HARPER CO.

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**HARPER**  
EVERLASTING FASTENINGS

BRASS • BRONZES • COPPER  
MONEL • STAINLESS

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## IDEAS

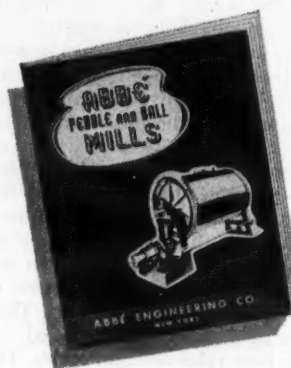
### Effect of X-rays on Quartz Oscillator Plates

*Recent discoveries reveal action when radiation passes through plates of crystalline substances*

Recent discoveries show that X-rays and certain other types of radiation, including cathode rays (electrons) and deuteron beams from a cyclotron, when allowed to pass through plates cut from certain crystalline substances, alter the mechanical strength of the material. The reports of this discovery indicate that there are accompanying changes in the color of the crystals and the chemical reactivity also may be altered; the incident radiation causes an interchange of electrons between the atoms composing the crystal and, by thus altering the interatomic bonding forces, changes the elastic contents of the material. The effect is described as being similar in origin to the action of visible light in blackening photographic emulsions and to the well known action of ultra-violet light in permitting certain chemical reactions, such as in the synthesis of Vitamin D. This discovery has been put to practical use in the war effort. Tens of millions of tiny plates of crystalline quartz, the size and shape of postage stamps, are used as oscillator plates to control radio communication. By using the X-ray irradiation technique, oscillator-plates can be adjusted rapidly and easily to a desired frequency with a precision hitherto impossible. The change in frequency can be followed visually on a meter by oscillating the plate during irradiation. (Commercial equipment for this purpose has been designed by North American Phillips Co.) Other interesting applications encountered in the course of these

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### into your plan for BETTER GRINDING



Abbe' Continuous Tube Mill

Learn How This  
Modern Equipment  
Can Speed Up and  
Improve Wet or  
Dry Grinding  
or Pulverizing  
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in Any Capacity

Design and performance  
details on the way to bet-  
ter processing — more  
economically — This Cat-  
alog is yours for the ask-  
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#### ABBE' ENGINEERING CO.

46 Church Street

New York 7, N. Y.

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## Here's a Case Where GOING AROUND IN CIRCLES Pays Off



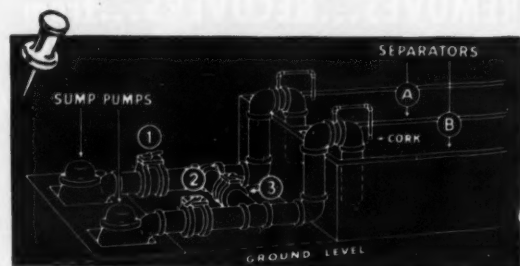
**SECO SCREENS  
MORE TONS  
PER HOUR  
WET OR DRY  
MATERIALS**

True Circular Action — this is the thing that gives every inch of a Seco maximum screening effectiveness — under any load condition. Chemical processors everywhere who have put Seco screens to the test report not only increased tonnages — but also long dependable service with a minimum of upkeep. Let Seco solve your screening problem.

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9 Lafayette Avenue, Buffalo 13, N. Y.

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### How to Control Sump Pump Discharge

The plant sewer lines drain into the sump where the waste is pumped into the concrete separators through R-S Valves Nos. 1 and 2. Valve 3 in the connecting line provides a means of cleaning either A or B separators, as the 3/4-inch syphon breakers can be plugged with corks and the fluid syphoned from the separators to facilitate cleaning operations. The three 16-inch, 15-pound valves have 25-pound American Standard flanged drilling and are hand lever operated.

For fast, easy control and shut-off of volume and pressure, even under high pressure and temperature conditions, the R-S Butterfly Valve has no equal.

Prompt quotation furnished on receipt of installation data. Write for Catalog No. 14-B.



VALVE DIVISION  
R-S PRODUCTS CORPORATION • 4531 GERMANTOWN AVE., PHILA. 44, PA.

**R-S Streamlined  
BUTTERFLY VALVES**

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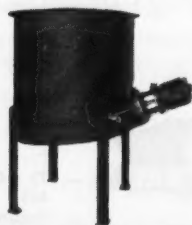
CHEMICAL PREVIEW



# NETTCO

## SIDE DRIVE AGITATORS

Sturdy, easily attached to side of tanks — the NETTCO Side Drive Agitators are especially adapted for blending, dissolving and other processes involving comparatively simple agitation. Available as motor or belt driven standard units . . . with motor, direct drive runs agitator at motor speed. Belt Types are driven by belt or chain as required. Side Drive Agitators can be furnished of steel, monel, bronze or any available alloy. We can solve your mixing problem. Let us know your requirements.



**NEW ENGLAND  
TANK & TOWER CO.**

93 Tileston St., Everett 49, Massachusetts

When Inquiring specify CP A2285 — see information request blank, pgs. 2-3

## New, Better Finishes For Paper, Fabrics, Textiles!



## \* ROSS TREATER SYSTEMS

Successfully treating paper and fabric with plastics in solution, these continuous ROSS Treater Systems are equally adaptable for many processes of impregnating and treating woollens, cottons and similar textiles. Consult us on a method for producing protective or utility finishes for your product or material.

Mechanical treating apparatus by John Waldron Corp. Air processing and curing equipment by J. O. Ross Engineering Corporation.

**ROSS J. O. ROSS**  
**ENGINEERING CORPORATION**  
DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS  
350 MADISON AVE., NEW YORK 17, N. Y.  
201 N. Wells St., Chicago 9 • 78 Park St., Boston 9 • 12013 Broadway Ave., Detroit 2  
ROSS ENGINEERING OF CANADA, LIMITED — Dominion Square Building, MONTREAL 1, P. Q.  
FABRIER — ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

When Inquiring specify CP A2286 — see information request blank, pgs. 2-3

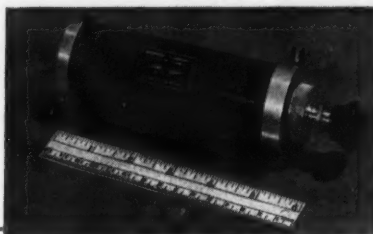
JULY - AUGUST, 1945

## IDEAS

developments include the coloring of gem stones and giving some colorless stones of small value intense hues. Diamonds have been colored green and golden brown by irradiation with deuterons. The costs are large, however, and results not always predictable. Irradiation with X-rays also has been found to greatly modify the rate of solution and the chemical reactivity of crystals and a new field of X-ray photochemistry is being opened by this research. (Data presented here based on reports from Reeves-Ely Laboratories, Inc. concerning discoveries of Dr. Clifford Frondel, head of Research Division.)

## Midget Panel Type Dry Air Pump

*Mounts directly on panel; weighs 10 ounces*



Midget pump, output 3 in. per stroke

becoming an integral part of the apparatus which it pressurizes. The midget pump is always connected and ready for instant use. Output is three cubic inches per stroke. It weighs only ten ounces, so is especially useful where weight is a factor. It has various applications where equipment requires pressurizing. Like the maker's standard dry pump, the midget model has a transparent cylinder which contains the drying agent. The latter is blue until its dehydrating capacity is exhausted. Then it turns pink, at which time it may be reactivated and replaced. (Andrew Co., 363 E. 75th St., Chicago, Ill.)

A midget pump has recently been developed that is only six inches long and two inches in diameter. The small size makes it possible to mount this pump directly on a panel, thus

## Heads Easily Forced on Drums With Compressed Air Cylinder

*Easily constructed jig permits application of power to handle distorted material*



Placing Drum Heads

air cylinders with ease at twenty-pounds of pressure. Other equally convenient applications include applying barrel hoops and opening doors. (Data — Ingersoll-Rand Co.)

Compressed air helps to make many troublesome jobs easy. The picture here shows how an air cylinder and an easily constructed jig make a powerful machine for forcing drum heads into position smoothly and snugly. Even distorted material is automatically aligned and fitted into place. A 2 HP compressor operates one or more

# GET SET NOW!

● Force measuring and weighing apparatus has taken day-and-night punishment in this war. Even the best of the war-made equipment will not give prewar performance, in durability and continued accuracy.

Yet invisible losses due to inaccurate control equipment can seriously affect costs, quality standards and profits.

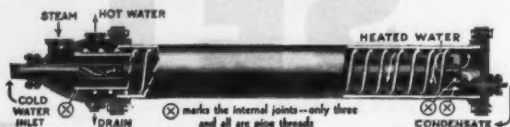
We can help you in planning for weighing, counting, force-measuring, batching, testing and similar control operations. You can save time and loss later if you get set on these matters now. Write for timely information pertinent to your industry. Toledo Scale Company, Industrial Division, Toledo 12, Ohio.

# TOLEDO HEADQUARTERS FOR SCALES

When Inquiring specify CP A2287 — see information request blank, pgs. 2-3

IF IT'S **HOT WATER**  
YOU WANT

## THE JOHNSON *Instant* HEATER



● In sheer heating ability the Johnson "Instant" Heater has set the pace for many years. The illustration shows how its ingenious design routes water first inside, then outside, the steam heated chamber — secures faster, greater heat transfer for a unit of its size. Note, too, the simple, rugged construction, which eliminates any need for reducing valves; you can hook the Johnson Heater right up to your high pressure steam lines. Used for a wide variety of applications; available in complete range of sizes and capacities.

Write for new bulletin

THE  
**Johnson Corporation**

826 WOOD STREET, THREE RIVERS, MICHIGAN

When inquiring specify CP A2268 — see information request blank, pgs. 2-3

## IDEAS

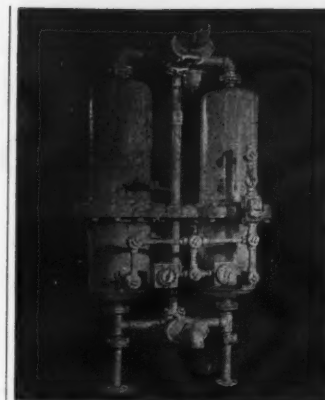
### Plastic Lab Pump Accurately Dispenses Corrosive Solutions

*Avoids waste, spillage; adapted to fit any size bottle; metal spring isolated from fumes and liquid of the solution*



PUMP fits into neck of acid bottle

A small, plastic laboratory pump provides for precise dispensing of solutions, avoids waste, spillage, dripping, corrosion of laboratory benches and protects hands. The pump consists of an injection molded acid and alkali resistant body and plunger. The gaskets used to effect the seal are made of sponge neoprene rubber, internally lubricated for smooth action. The metallic spring which forces the plunger back to normal position is of corrosion resistant alloy, but the design of the pump is such that no liquid or vapor can contact the metallic spring, enabling it to stand up through a long period of service. The pump when once installed, performs as a permanent dispenser, and seals off the solution from the air at the same time, thus retaining the concentration of the solution indefinitely. The pump can be adapted to fit any size bottle. (U. S. Stoneware Co., Akron, Ohio)



### COMPRESSED AIR DRIED TO BELOW ZERO DEWPOINTS

- For instrument lines
- For process work
- For inspection and assembly departments



Kemp Adsorptive Dryers are the standard in modern industrial applications.

For Bulletin T25C write  
The C. M. Kemp Mfg. Co.  
405 East Oliver Street,  
Baltimore 2, Maryland.

**KEMP of BALTIMORE**

When inquiring specify CP A2270 — see information request blank, pgs. 2-3

## 4 NEW FLEXIBLE **KARBATE** EQUIPMENT CONNECTIONS

TRADE-MARK

Strength, flexibility, and ease of installation distinguish four new improved "Karbate" chemically resistant equipment connections now available. Their designs are the result of years of experience by National Carbon Company, Inc., in furnishing "Karbate" impervious carbon or graphite equipment to the chemical, process and other industries.

Like the many "Karbate" specialty products used for storage, conveying, handling and processing of corrosive liquids and gases, these connections are not only strong but have high resistance to mechanical and thermal shock and to the action of most acids—notably hydrofluoric—alkalies, and other corrosive chemicals.

For additional information about the new "Karbate" equipment connections, write to our nearest Division Office for Catalog Section M-8805.

The word "Karbate" is a registered trade-mark of National Carbon Company, Inc.

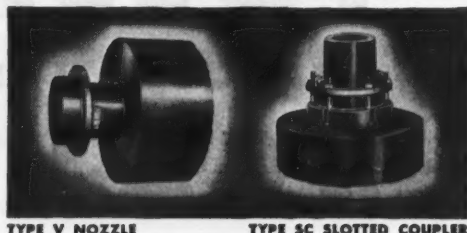
**NATIONAL CARBON COMPANY, INC.**  
Unit of Union Carbide and Carbon Corporation

General Offices: 30 East 42nd Street, New York 17, N. Y.

Division Sales Offices:

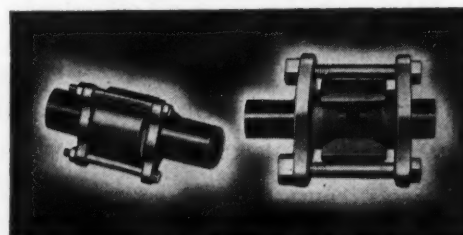
Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

LET'S GET  
THE JAP—  
AND GET  
IT OVER!



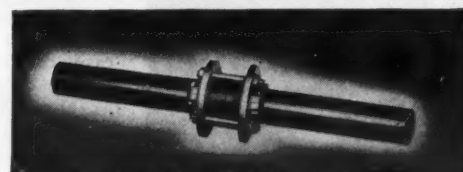
TYPE V NOZZLE

TYPE SC SLOTTED COUPLER



TYPE FC FLEXIBLE COUPLING

Easily installed or dismantled on the job. Simplifies final pipe length adjustment between pieces of equipment. Permits movement in any direction to protect "Karbate" piping from effects of vibration, misalignment and differential expansion. Used with "Karbate" pre-assembled standard nipples and fittings, pipe may be cut to length and rapidly installed in the field.



TYPE V FLANGED CONNECTION

Thick, small diameter collars provide sturdy construction which can be used with companion flanges of almost any design or material. The separate cast iron split flanges permit easy pipe alignment and installation.

← Recommended for connections on "Karbate" tanks, towers, heat exchangers and similar equipment. Generally installed at our factory and not particularly suitable for field installation. The Slotted Coupler is of more compact construction than the Type V Nozzle, but the choice of connection depends upon requirements of each job.

**It Pays**  
to Put Your  
Compressed Air  
Through an Aridifier!



The constantly clean, dry compressed air provided by the Aridifier doesn't cost—it pays.

What it saves by lowering maintenance costs on air tools, hoists and controls quickly pays for the Aridifier. This effective air cleaner also saves by removing contamination from air lines serving spray booths, eliminating spoiled finishes.

The Aridifier thoroughly removes moisture, dirt and oil from compressed air by centrifugal force. Contains no filters, nothing to clean, replace or regulate. Its action is continuous and automatic. Thousands are in use—476 in one aircraft plant. Sizes for 3/8" to 10" pipe.

Let us send you Bulletin 543.

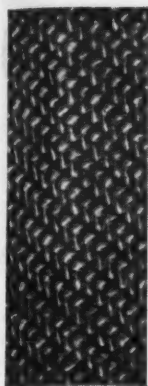
Logan Engineering Co.  
4900 Lawrence Ave., Chicago 30, Ill.

**Logan ARIDIFIER**  
Dries and Cleans Compressed Air



When inquiring specify CP A2271 — see information request blank, pgs. 2-3





## GLASS

### Makes an Excellent Filter Medium for Strongly Acid and Hot Solutions

To the process plant operator, chemical glass needs no introduction as a material highly resistant to most chemicals, hot or cold. Chemical glass, spun and woven into a filter medium, offers the same acid and temperature resistance.

F-M Glass Filter Medium is also durable in a mechanical way, being carefully spun into strong threads and woven into tough cloth. We can offer several different weaves, ranging from coarse to fine, from heavy to medium weight. And we can offer trained technical advice, if desired, and laboratory tests for determining the best grade of Glass Medium for your particular problem.

In writing please give as complete a picture as possible of your problem.

**FILTER MEDIA CORP.**  
Irvington-on-Hudson, N. Y.

Chicago Salt Lake City

7-FM-2

When inquiring specify CP A2272 — see Information request blank, pgs. 2-3

## BEAVER "4-WAY"

### One-Piece Threaders

1/4 to 3/4 In. Adjustable!



Popular favorites for many years. Patented design. Nothing similar on the market. Fully self-contained. No loose dies — no loose bushings. Fully adjustable for standard, oversize or undersize threads. Thread 1/4, 3/8, 1/2 and 3/4. 1/8 inch dies extra, when desired.

Buy through any leading supply house.

Write for latest 48-Page Catalog No. 44 of hand tools and power units and machines.

## BEAVER PIPE TOOLS

745 REVIEW AVE. WARREN, OHIO

When inquiring specify CP A2273 — see Information request blank, pgs. 2-3

JULY - AUGUST, 1945

## IDEAS

### Block Adjusts Rope to Maintain Constant Level of Crane Loads

*Provides greater safety and speed in moving crane loads in foundries and other plants*



PAIR OF SLINGS handle a foundry flask

against a brake which prevents slippage. The load is then lifted level. If necessary it is easy to lower the load, relieve tension, move crane hook closer to center of gravity and again apply power for greater accuracy in level before getting load completely under way. (MacWhyte Co., Kenosha, Wis.)

Safety and ease in handling loads in foundries and many other plants are now provided for smaller capacity requirements — 3.4 and 1 1/2 tons — as well as larger units — 3 and 6 tons — which were exhibited at National Safety Congress last year. Operation is simple. As crane hook is lifted, rope automatically adjusts itself through the special "Level-Lift" block. In so doing, one sling leg of the rope becomes longer than the other, and as the weight of the loads pulls on the wire rope, the sheave in the block pulls down

### MAKE ACCURATE PHOTOCOPIES OF ANYTHING! Right in your Office or Plant—Quickly, Easily, at Low Cost!



**The APÉCO  
PHOTOEXACT**  
"Copies Anything!"

REPORTS, LETTERS, DRAWINGS,  
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Save typing and drafting time—money—expedite work! Make error-proof copies—1-a-minute—of anything written, typed, printed, drawn or photographed—even if on both sides. Get per-

manent, non-fading copies. No darkroom or technical knowledge needed. AMERICAN PHOTOCOPY EQUIPMENT CO., 2849 N. Clark St., Dept. DK75, Chicago 14, Ill. Representatives in principal cities and Canada

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Chicago 14, Ill.

Send illustrated folder showing how APÉCO saves time, money and labor.

NAME.....  
TITLE.....  
COMPANY.....  
ADDRESS.....  
CITY.....STATE.....

When inquiring specify CP A2274 — see Information request blank, pgs. 2-3

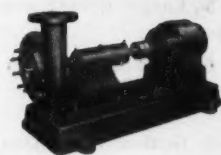
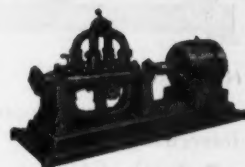


★ Complementing the eminent line of Peerless Vertical Turbine, Hi-Lift, Hydro-Foil, Jet and Water King Pumps, Peerless now manufactures Horizontal Centrifugal Pumps, formerly Dayton-Dowd.

Peerless has acquired the Dayton-Dowd Company of Quincy, Illinois, which henceforth will be operated as the Quincy Works of Peerless Pump Division.

So now, regardless of the type of pump you need—Peerless produces it, giving you choice of vertical or horizontal design, plus augmented hydraulic engineering service.

Advise us as to the type of pump desired—whether vertical or horizontal—capacity and lift. We will be pleased to submit full specifications and engineering details.



## Peerless Pumps

### VERTICAL & HORIZONTAL

PEERLESS PUMP DIVISION—Food Machinery Corp.  
105 ANGELES ST. CALIF. ★ QUINCY, ILLINOIS ★ CANTON, OHIO  
301 W. Ave. 26 2nd and York St. 1230 Commerce Ave. S.W.

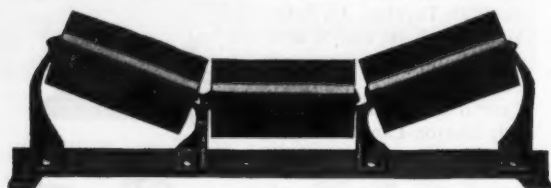
When inquiring specify CP A2275 — see Information request blank, pgs. 2-3

## How To OPERATE AT FULL CAPACITY



**T**O KEEP production lines moving—often 24 hours a day—that's industry's problem today. Delays for repairs are out.

Rex Belt Idlers help solve that problem. They assure trouble-free and uninterrupted service. Easy and inexpensive to install, they keep material flowing under the toughest conditions.



### Here's why:

1. Rollers are one-piece cylinders—removable and interchangeable.
2. Triple labyrinth grease seal—grease stays in and dust stays out.
3. Tapered roller bearings take all thrust—and radial loads.
4. Malleable brackets ribbed to prevent breakage under shock.
5. Large grease reservoir with passage to both bearings.
6. Unit mounting of roller bearings—positive, permanent alignment.

For further information on this and other conveyor units, write for Bulletin No. 410. Chain Belt Company, 1694 W. Bruce Street, Milwaukee, Wisconsin.



**REX** BELT CONVEYORS  
**CHAIN BELT COMPANY**  
**OF MILWAUKEE**

When inquiring specify CP A2276 — see information request blank, pgs. 2-3



## NEW LITERATURE ★

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

### Prefabrication Simplifies Installation of Boilers; Small Units Completely Assembled

Forced recirculation boilers which offer simplicity in field erection, positive circulation under all load conditions, maximum furnace volume and minimum space requirements are described and illustrated in six page folder. It describes how prefabrication and shop testing sub-assemblies reduce boiler erection time. Smaller sizes can be shipped completely assembled, limited only by railroad clearances and entrance conditions at the job. None of the generating tubes enter the steam drum directly and therefore the drum does not have to be placed on structural steel boiler supports until all tubular elements have been erected. In general, construction of these LFS boilers is conventional for bent tube power boilers. The folder also devotes one page to helpful suggestions on how furnace water-wall prefabrication and tested elements of the LFS boiler may be added as an external furnace to existing boilers. When so applied the furnace is known as LFS Boiler Booster.

INTERNATIONAL BOILER WORKS CO., (Power Div.), Dept. CP, 230 Birch St., E. Stroudsburg, Pa.

When inquiring specify CP A2277 — see information request blank, pgs. 2-3

### Equipment for Chemical, Ceramic, Rubber, Soap, Plastics, Drug Processors

A handsome 96 page multi-colored catalog 8½ x 11 in. with plastic spiral binding presents a wide variety of processing equipment. Included in the selection are crushers, mills, dryers, sifters and screens, pressure vessels, filters, pumps, mixers, kettles, cookers, electric ovens, stills, conveyors and presses. This equipment guide is identified as Catalog 45.

FIRST MACHINERY CORP., Dept. CP, East 9th St. and East River Drive, New York 9, N. Y.

When inquiring specify CP A2278 — see information request blank, pgs. 2-3

### Sanitary and Water and Brine Pumps for Dairy and Food Processing Plants

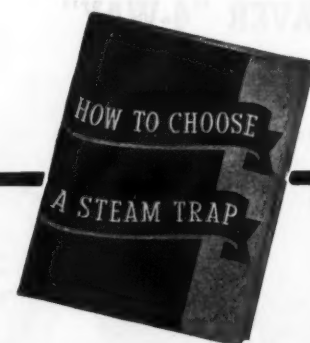
Sanitary centrifugal pumps for milk, cream and food products are described in an illustrated twelve-page catalog. Included in the catalog is a complete line of water and brine pumps. The sanitary pumps have open pipe impeller, individual bearing housing and direct motor drive. Features include removable inboard and outboard heads, an ingeniously designed retaining pin to hold impeller in



**For dependable  
PERFORMANCE**  
*select*  
**Quincy**  
*COMPRESSORS*

QUINCY COMPRESSOR CO.  
QUINCY • ILLINOIS

When inquiring specify CP A2278 — see information request blank, pgs. 2-3



### Continued requests for this book has **PROVED** its value

This free book has helped countless users of steam equipment to select the right trap. Included in it are short formulas for computing condensation; capacities for steam-using equipment; how to save time installing Steam Traps as an elbow or straight-in-line. All these short cuts and much more helpful information is explained in simple, everyday language. Write today for your free copy.

**THE V. D. ANDERSON COMPANY**  
1954 West 96th Street • Cleveland 2, Ohio

When inquiring specify CP A2280 — see information request blank, pgs. 2-3



## NEW LITERATURE

position, thus eliminating any internal threads within the pump which would come in contact with the product. Complete specifications are given by means of drawings and tables for both motor and belt drive pumps. The water and brine pumps, like the sanitary pumps have stainless steel shafts and are available in a number of motor drive sizes. Copies of Bulletin 9 B will be sent on request.

SPECIALTY BRASS CO., Dept. FP, Kenosha, Wis.

When inquiring specify CP A2281 — see information request blank, pgs. 2-3

### New Organics and Fungicides, In Commercial, Semi-commercial or Laboratory Quantities

Complete information on new organic products is offered in recently issued 16 page booklet. There is a brief discussion of the chemistry of organic carbonates and reference to studies made by the company's chemists on the condensation reactions of alkyl carbonates and the processes which have been developed which make it possible to consider the potential industrial utility of malonic esters, the higher beta-keto and alpha-cyanoesters, oxazolidones, isoxazolones, oxazolidinediones, and polymeric substances derived from the reaction of organic carbonates with polyfunctional compounds such as aminoalcohols. There follows a discussion which points out specific compounds which can be made practically. The data presented includes tables on properties of Organic Carbonates, malonic esters, etc. The latter pages of the book are devoted to new fungicides. Three new fungicides — Pyridylmercuric Chloride, Pyridylmercuric Stearate, and Pyridylmercuric Acetate are in commercial production. A practical discussion of the requirements for fungicides is of particular interest in this connection. Materials which can be protected with the pyridylmercurics are: textiles, felt, cork, paint, wax, paper, synthetic resins, rubber, leather, oils, and greases. Brief explanations of some of these applications are included and concentrations required in use with specific materials listed. Several pages are devoted to the subject of ultra-pure chemicals for phosphors. The exceptional purity required is emphasized as is the importance of physical form. Specifications of a number of products used for production of phosphors are conveniently tabulated. Copies of this booklet are available on request.

THE MALLINCKRODT CHEMICAL WORKS, Dept. CP, St. Louis 7, Mo.

When inquiring specify CP A2282 — see information request blank, pgs. 2-3

### Turbine and Propeller Pumps

An illustrated bulletin presents detailed information on oil lubricated turbine pumps with enclosed impellers and features a jumbo picture of a typical unit on a three page spread. The cross sectional view that it provides together with accompanying description fully explain design and operating features. Both pumps and motors are built in company's plants. These turbines with highly efficient, enclosed impellers can be fitted for either water or oil lubrication. (Open impeller pumps are also available.) A table gives sizes and ratings covering a range from 35-60 gph to 3000-4000 gph. (Publication AQB400.1). Another bulletin describes vertical propeller pumps and also features large sectional illustrations. These are especially designed for large capacity, low head pumping service. Used for circulating requirements in various industries. Identified as 6310 propeller pumps they are offered in sizes from 8 in. to 48 in. for capacities up to 60,000 gpm and heads up to 40 ft. (Bulletin AQB500.1).

FAIRBANKS MORSE & CO., Dept. CP, Pomona, Cal.

When inquiring specify CP A2283 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



## MECHANICAL GUARDIANS FOR ALL KINDS OF PIPE LINES

In chemical industries, synthetic rubber plants, oil refineries . . . any plant, piping precious or potentially hazardous fluids . . . a mistake, whether unintentional or deliberate, in adjusting a pipe-line valve can prove both dangerous and costly. But prevention of these human errors is easy and infallible with BENDIX-CORY\* SAFETY INTERLOCKS . . . the locks that say "No!" to unauthorized handling of your valves.

The BENDIX-CORY SAFETY INTERLOCK illustrated gives absolute control over the opening and closing of the valve to which it is attached . . . and, by use of an interlock key, can also control the position of this valve in relation to any number of other valves. The unit is wholly mechanical, and fully adjustable to compensate for valve wear—one of a number of interlocks specially designed for valve protection.

BENDIX-CORY SAFETY INTERLOCKS are dependable guardians for your pipe lines. Write for full information.

\*REG. U. S. PAT. OFF.

### CHECK THESE FEATURES

- ✓ Interlocks stem valves 2" to 8". Other interlocks for globe, lead and porcelain valves.
- ✓ Absolute control of valve opening and closing under all conditions.
- ✓ Positions valve in relation to other valves.
- ✓ Ample strength characteristics.

- ✓ Indoor or outdoor installation without removing valve from service.
- ✓ Fully mechanical. No electric circuit.
- ✓ Position indicator (not shown) shows valve open or closed.
- ✓ Adjustable compensation for valve wear.

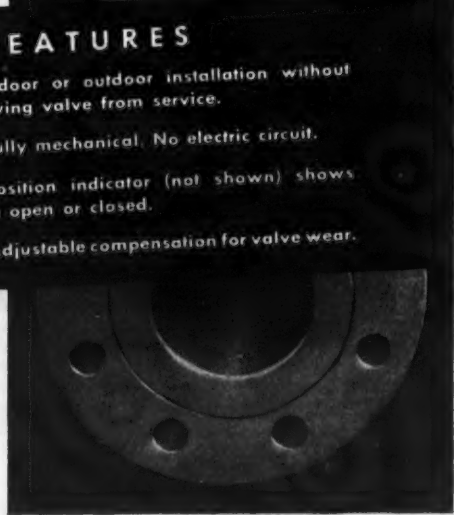
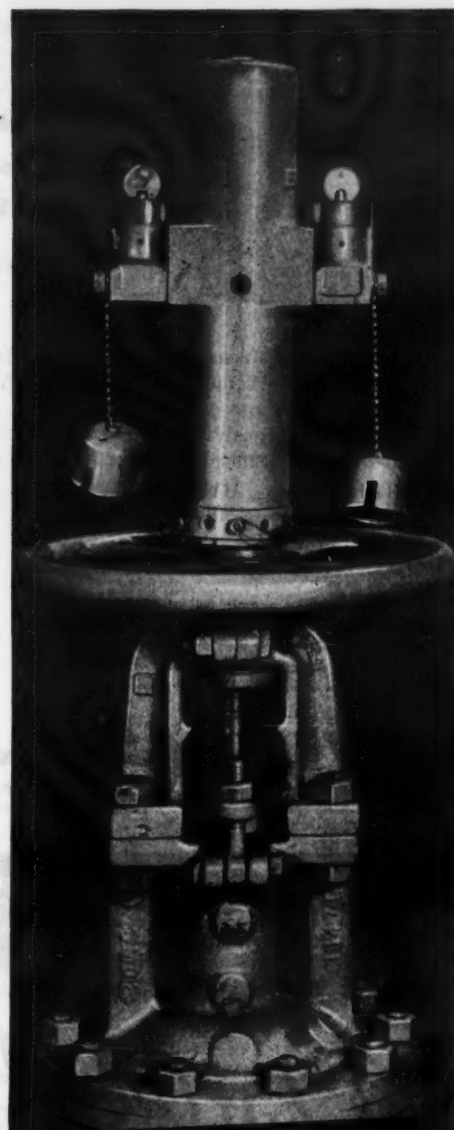


PRODUCT OF  
**Bendix**  
AVIATION  
CORPORATION

MARINE DIVISION • 106 Nostrand Avenue, Brooklyn 5, N. Y.

PRODUCTS OF BENDIX AVIATION CORPORATION

When inquiring specify CP A2284 . . . see information request blank, pgs. 2-3





Instead of being stocked separately, every related part in this assembly is bundled together with MYSTIK Self-Stik TAPE into one convenient, easily handled unit... instantly ready for final assembly. Bottle-necks caused by lost or misplaced parts are eliminated.

Tight-gripping, MYSTIK goes on fast, strips off easily and cleanly; doesn't harm or leave residue on the finest finish.

**FREE**—Big sample roll of MYSTIK Self-Stik CLOTH TAPE and fact-filled literature about its many time-saving uses applicable to your plant. Write: Mystik Adhesive Products, 2629 North Kildare Avenue, Chicago 39, Illinois.



**MYSTIK Self-Stik**  
ADHESIVE PRODUCTS  
When inquiring specify CP A2285 — see information request blank, pgs. 2-3

PLAN NOW FOR POST WAR COMPETITION!

**PARSONS OVAL BAG**

*Dust Arrestors*  
• SPEEDS UP PRODUCTION  
• CUTS MAINTENANCE COSTS  
• INCREASES EMPLOYEE EFFICIENCY

Post war business will be a "competition business". Far sighted executives will streamline their plant for greater production. Factory dirt and dust slow up production — deteriorate machinery — cause absenteeism. Parsons Oval Bag Dust Arrestors will solve the problem... and in most cases actually pay for themselves in increased production and the reclamation of valuable dust. Our engineers will check your dust problem without obligation.



**Parsons** CREATIVE ENGINEERS  
MANUFACTURERS  
ENGINEERING CORP.  
2388 E. 79th ST. CLEVELAND 4, OHIO

WRITE FOR BULLETIN... "MASTERY OF THE AIR"

When inquiring specify CP A2286 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Cathode-Ray Photography Screen Designations

In a bulletin "New Designations of Screens for Cathode-Ray Photography," more precise definitions as well as characteristics covering such screens are presented.

Heretofore two general types of blue screen materials have been used commercially for photographic work. Both have been designated as P5. It has now become apparent, however, that these materials, each offering distinct advantages in certain photographic applications, are sufficiently different to warrant different type designations. These two types of screen materials are sulphide and calcium tungstate. It has been agreed by RMA and the Armed Services to designate the screens having the characteristics of calcium tungstate as P5, and those of sulphide as P11. Du Mont tubes in the past have used the sulphide type screen. Therefore, the change to the P11 designation will not represent a change in screen material to those who have been getting P5 photographic screens from Du Mont.

The general characteristics of P5 and P11 screens compare as follows: Both are of the short persistence, blue fluorescent type, and of high photographic activity. The main difference is the considerably higher photographic and visual efficiency of the P11, and the shorter persistence of the P5. P11 is advantageous for all still photographic applications particularly high-speed phenomena, and for continuous moving picture recording up to the limit where persistence produces blurring of the picture (approximately 10,000 cps.). The use of the P5 screen is recommended only for high-speed continuous motion picture recording above the limit of the P11, or up to 60 kc without blurring.

ALLEN B. DU MONT LABORATORIES, INC., Dept. CP, 2 Main Ave., Passaic, N. J.

When inquiring specify CP A2287 — see information request blank, pgs. 2-3



### 3000 Gallon DDT Tanks of Pyroflex Construction

The above processing tanks for making DDT, the war department's powerful insecticide, were designed by Knight engineers and built at our Akron plant. Each tank is a complete functional unit and is corrosion-proof because of its Pyroflex construction.

Why not let Knight engineers design a tank specifically to meet your exact needs? Given the problem, we will design and build the needed Pyroflex unit and guarantee its successful performance. In this way you will get the benefit of Knight's 30 years' experience in the handling of corrosive materials. Send full details for prompt attention.

**MAURICE A. KNIGHT**

407 Kelly Ave., Akron 9, Ohio

When inquiring specify CP A2288 — see information request blank, pgs. 2-3



New working efficiency makes Stanzoil still more popular with workers, so cuts your hand accidents, production losses, costly injury claims. All Stanzoil now have this really non-slip finish. Made of DuPont neoprene, as processed by Pioneer, they outwear rubber 3 to 7 times, resist attack by oils, acids, caustics, are comfortable, flexible, safe for sensitive hands. All needed styles, sizes, weights, black or white. Preferred by hundreds of industries. For economy, safety, better work, write for Stanzoil facts today.



Synthetic Rubber Division  
**THE PIONEER RUBBER COMPANY**  
239 Tiffin Rd., Willard, Ohio, U.S.A.  
New York • Los Angeles

OVER 25 YEARS OF QUALITY GLOVE MAKING

When inquiring specify CP A2289 — see information request blank, pgs. 2-3

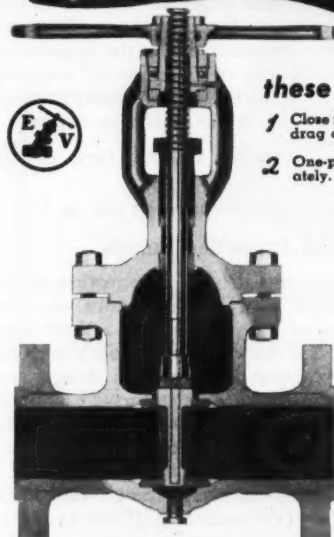
### New GATE VALVE design

with these FEATURES:

- 1 Close fitting guide ribs prevent wedge drag on seating faces.
- 2 One-piece bonnet aligns stem accurately.
- 3 Special testing procedure tests both seating faces simultaneously, assures two tight seating faces.
- 4 Ball bearing yoke eases in medium sizes.
- 5 Uniform metal sections reduce distortion in heating and cooling.
- 6 Integral but replaceable hard surfaced seats.

Built in sizes 2½ to 12 in. for service from 150 to 3600 lb.

Write for New Catalog 12-E with full details of new, basically different Edward guiding method and complete dimensions.



**THE EDWARD VALVE & MFG. CO., INC.**  
EAST CHICAGO, INDIANA

**Edward Valves**  
Forged Steel & Cast Steel

When inquiring specify CP A2290 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## 'BOTTLENECKS' LIKE THIS PREVENTED WITH ADEQUATE SKID PLATFORM AND SEMI-LIVE SKID FACILITIES



PROTECT EMPLOYEES  
REDUCE WORKER FATIGUE  
BUILD BETTER MORALE

Write For Bulletin 40

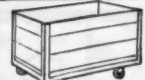
### IRONBOUND BOX & LUMBER CO.

Materials - Handling Division

35 HOFFMAN PLACE

HILLSIDE, NEW JERSEY

SKID PLATFORMS SEMI-LIVE SKIDS FLOOR TRUCKS



When Inquiring specify CP A2291 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Stainless & Chromium Plated Welded Steel Floats

Welded floats in stainless steel and chromium plated steel are illustrated and described in eight page bulletin. The selection offered includes spherical, elliptical and cylindrical shapes; sizes from two inch to fourteen inch diameter and for pressures from vacuum to 3000 pounds. Their wide applications include chemical and steam specialty equipment such as liquid level controls, float operated valves, bottling machinery, steam traps, water columns, tanks, feed water heaters, etc. These floats are die-formed, not spun, laminated or electro-deposited, thus giving an approximate uniform wall thickness, and are annealed between draws to prevent cracking. The seam is butt welded by either electric arc or gas. The connection and welding rod are of the same material as the float. All connections are welded to the float. A number of drawings show standard floats in various shapes to aid in selection of shapes and there are similar drawings to visualize connections. Complete specifications are conveniently tabulated. The back page contains volume and buoyance data in handy form. Copies of Bulletin Number 345 will be sent on request.

W. H. NICHOLSON & CO., Dept. CP, 12 Oregon St., Wilkes-Barre, Pa.

When Inquiring specify CP A2293  
— see information request blank, pgs. 2-3

### Compilation of Masonry Cutting Information

Attractive manual of handy size and with plastic spiral binding to lay flat provides a wealth of material on cutting information for all operators of masonry saws. The multiple cutting principle is discussed. This is basically a series of rapid, shallow cuts, accomplished by operating the conveyor cart on which the material rests, back and forth beneath the blade. The operator is not fatigued because he is not obliged to maintain a steady pressure or exacting rate of speed. Downward pressure of blade is regulated by pressure equalizer spring and the motion of the conveyor cart is variable with the density of the material being cut. The manual discusses in detail and shows in picture form how to make difficult cuts and gives complete details concerning the maker's masonry saws. It includes helpful tips on operation and maintenance and lists a number of the more familiar materials that are cut by these saws. Complete information on saws and blade recommendations will be furnished on request.

CLIPPER MFG. CO., Dept. CP, 4030 Manchester St., St. Louis, Mo.

When Inquiring specify CP A2294  
— see information request blank, pgs. 2-3

## Pump Handles 130,000 Tons of Ore Tailings in a Year.....

An Amsco-Nagle 8" Type "T" frame 29 pump (P-144-N) was installed at a Minnesota mine to handle iron ore tailings. The orig-

have a peen-hardening effect on manganese steel.

Work-hardening under impacts or heavy pressure, thus increas-

ing abrasion resistance, is one of the most valuable characteristics of austenitic manganese steel, and has resulted in its use for a wide range of applications where severe wear is encountered. However, manganese steel, with-



P-144-N

inal specifications called for 2,000 gallons per minute against a 50' head, but the pump is now handling 3,000 gallons per minute against a 75' head.

out this cold-working, is a good wear-resisting metal.

Last year the pump moved approximately 130,000 tons of tailings. When it was opened for inspection at the end of the year, the parts seemed good for another two months of operation, which would increase its output roughly to 175,000 tons.

Where there are work-hardening conditions, the service ratio between manganese steel and other ferrous metals is so high that the other metals are usually out-classed. As the work-hardening factor diminishes, this disparity decreases but seldom to a point where manganese steel wearing parts will not pay for themselves, as they did in the case of the pump described.

Significant in this case is the nature of the material, which is very finely divided and definitely not in the class of materials which

Amsco-Nagle pumps welcome abrasive or corrosive applications.

Send for Bulletin 940.

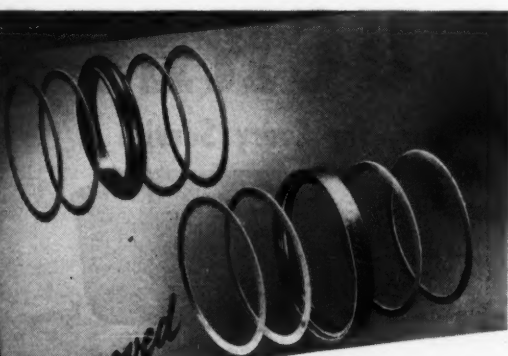
Send for Bulletin 941-W on Amsco Welding Rods

**Amsco**  
AMERICAN MANGANESE STEEL DIVISION  
Chicago Heights, Illinois

AMERICAN  
**Brake Shoe**  
COMPANY

FOUNDRIES AT CHICAGO HEIGHTS, ILL.; NEW CASTLE, DEL.; DENVER, COLO.; OAKLAND, CALIF.; LOS ANGELES, CALIF.; ST. LOUIS, MO.  
OFFICES IN PRINCIPAL CITIES

When Inquiring specify CP A2295 — see information request blank, pgs. 2-3



### Improved WEATHERHEAD T RING PACKING

This new product, shown here in an exploded view, solves the problem of sealing fluids in many types of machines employing various pressures. It meets the requirements of both standard and special applications. This T ring packing is available in two types and in sizes ranging from 1/2 inch to 4 inch O.D. For information or literature write or phone any Weatherhead branch office.

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THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO  
Branch Offices: New York, Philadelphia, Detroit, Chicago, St. Louis, Los Angeles

When Inquiring specify CP A2292 — see information request blank, pgs. 2-3

this is  
the  
*Modern way*



How to make every foot  
of space pay bigger returns—how to  
change materials into revenue—*faster!*  
**Use CLARK FORK TRUCKS**

**CLARK TRUCTRACTOR**  
BATTLE CREEK, MICHIGAN, U.S.A.

When inquiring specify CP A2206 — see information request blank, pgs. 2-3

## GLASS TANKS

ARE  
DURABLE



GLASS TANKS BY  
"PITTSBURGH" can  
safely handle tough  
solutions: acids, al-

kalis, nearly all liquids (even hot chromic acid). They  
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their contents. Made of specially tempered glass for  
strength. Able to withstand sudden temperature changes.

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Name.....  
Address.....  
City..... State.....

**PITTSBURGH PLATE GLASS COMPANY**

When inquiring specify CP A2207 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Fluorochemistry in Food Science

"Fluorochemistry in Food Science" is the title of a bulletin that tells how filth, adulteration and contamination may often be quickly and reliably detected by simple inspection of foods under the Mineralite ultra-violet lamp. The process of detecting filth is outlined in some detail. Applications for detection of adulteration and impurities are particularly interesting. A typical application is detection of shells in cocoa. Under the Mineralite shell tissues are usually buff brown while nib tissues appear blue-violet shades. The Mineralite also serves in the distinction of virgin and refined olive oils. Violet fluorescence is very noticeable in oils refined under pressure or obtained by solvent extraction. The countless food products which may be tested include coffee, eggs, brewery products, cottonseed, cheese, nuts, gelatin, spices, rice. Copies of this bulletin, the seventh in a series, are available on request.

ULTRA VIOLET PRODUCTS, INC., Dept. CP, 5205 Santa Monica Blvd., Los Angeles 27, Calif.

When inquiring specify CP A2298 — see information request blank, pgs. 2-3

### References On Uses of Cerium

Two lists of references to the uses of Cerium as an alloying agent in conjunction with aluminum and magnesium have just been released. These annotated bibliographies have been selected from English, French and German material of the past twenty years. Important articles are briefly summarized. Sources are indicated. Patents are listed. Copies of both bibliographies are available, without charge.

CERIUM METALS CORPORATION, Dept. CP, 522 Fifth Avenue, New York 18, N. Y.

When inquiring specify CP A2299 — see information request blank, pgs. 2-3

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Be assured of the best . . .

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Filter Papers; Filter Cloths; Filter  
Bases of wool, vinyon, glass, asbes-  
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Send for samples and our  
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Filter Base Division  
**D. R. SPERRY & CO.**  
Batavia, Illinois

When inquiring specify CP A2300 — see information request blank, pgs. 2-3



STYLE 749

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**MAKE LIFE SAFER AND EASIER**

**HERE'S WHY:** \*Clear, sturdy plastacele visors assure protection. \*New, exclusive CESCO design permits 15-second visor replacement — visors snap off and on with a turn of the fingers—held fast by spring clips. \*Extra comfortable—contour-shaped, adjustable headgear, soft leather sweatbands.

Write for complete details.

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STYLE 438

**CESCO FOR SAFETY**

When inquiring specify CP A2301 — see information request blank, pgs. 2-3

## BUCKETS

for Every Service



For excellence in  
war production

Link-Belt has been building and applying elevator buckets for over sixty years, and improvements in design have kept pace with improvements in production facilities. The line includes steel, malleable iron and Promal buckets of suitable size and type to meet any requirement. Stocked at all Link-Belt plants, warehouses and many distributors.

Send for Standard Equipment Catalog No. 850

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Dallas 1, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.  
Offices, warehouses and distributors in principal cities.

**LINK-BELT**

When inquiring specify CP A2302 — see information request blank, pgs. 2-3





## THIS VERTICAL PUMP FOR HANDLING CHEMICALS

Oleum, Concentrated Sulphuric and Mixed Acids, are successfully handled in a practical manner by Taber VERTICAL Pumps, because:

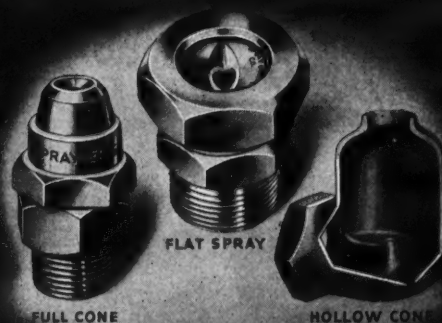
- ① Liquids handled do not come in contact with pump stuffing box.
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FOR COMPLETE INFORMATION PLEASE WRITE ON YOUR LETTERHEAD FOR HELPFUL TABER **Bulletin V-837**

**TABER PUMP CO., 320 Elm St., Buffalo, N. Y.**

**Taber Pumps** for Higher Practical Performance

When inquiring specify CP A2303 — see information request blank, pgs. 2-3



## SPRACO NOZZLES



Write for NOZZLE CATALOG to  
**SPRAY ENGINEERING CO.**  
125 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring specify CP A2304 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## NEW LITERATURE

### Centrifugal Pumps For Pulp & Paper Mills

Of interest to the pulp and paper industry is a new 20-page catalog entitled, "Centrifugal Pumps for Pulp and Paper Mills." The book is a comprehensive and informative piece of trade literature that covers all the pumping needs of the industry from the hydraulic barkers to the coating room, and also, pumps for fire protection and plant water supply. The center spread features a flow-chart showing the types of pumps used, and their positions in the various processes. This chart follows through the three classes of pulp — ground wood, chemical wood, and pulp from rag, straw, waste, and hemp — from the raw material down through the paper machine to the calendars. The book is notable for its use of drawings of typical paper products, and of cross-section blue-prints and charts, factors which add to its readability and interest. Also commendable is the manner in which each type of pump is explained as to its uses and construction. These types are classified according to processes, such as stock, liquor, and acid pumps. Further classification explains variations in construction such as cradle-mounting, double suction, axial and mixed flow, horizontal and vertical, and multi-stage. Copies on request. Ask for Form 7022.

INGERSOLL-RAND CO., Dept. CP, Phillipsburg, N. J.

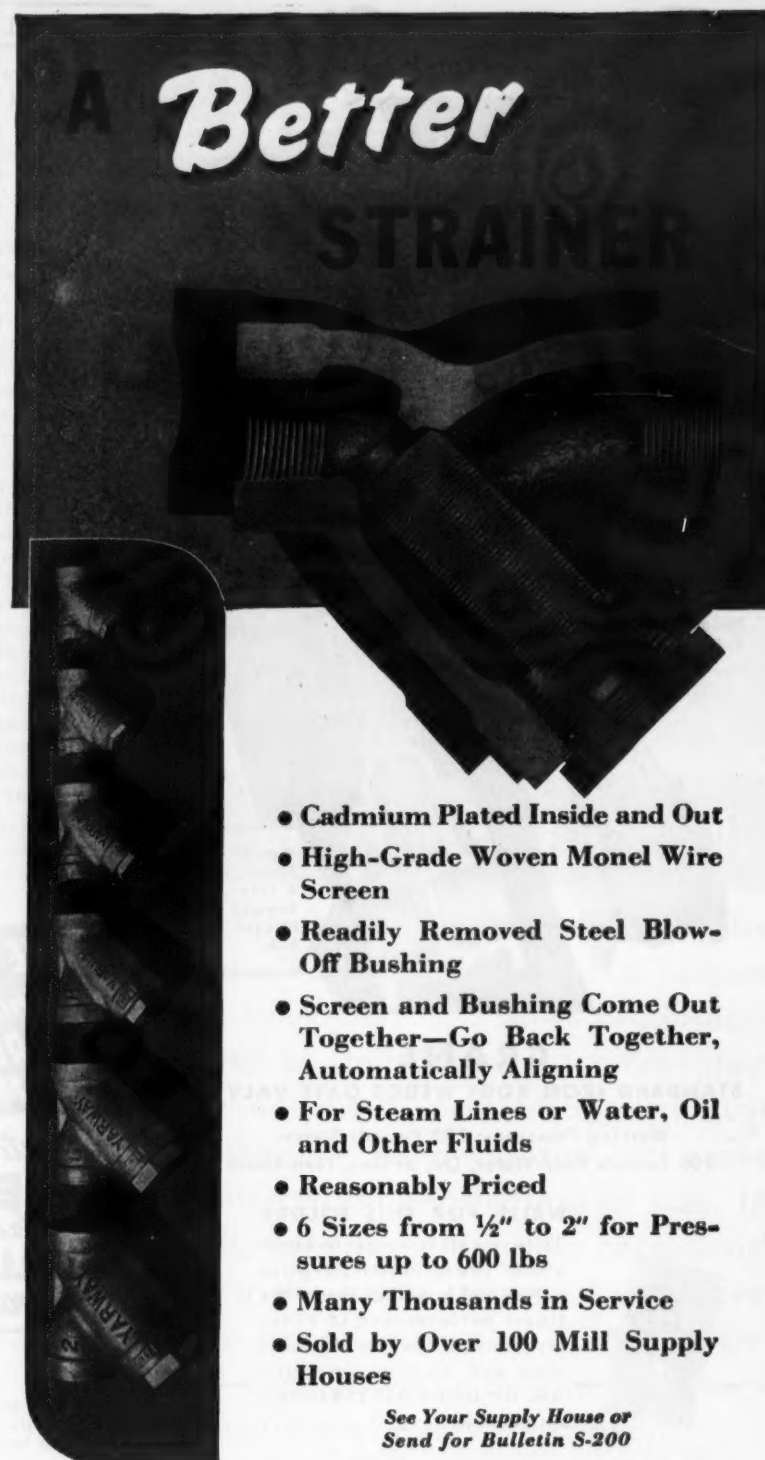
When inquiring specify CP A2305  
— see information request blank, pgs. 2-3

### Cleaner Removes Soft Metal Chips from Files

A new and improved file cleaner is described in tool bulletin. The File cleaner with Chip Plow quickly and efficiently cleans a file of soft metal chips — lead, copper, aluminum, and soft steel. A special square-shaped plate is fastened to the frame of a File Cleaner of the Company's regular high standard. This plate or plow, made of soft steel, is used by striking one edge on the file to be cleaned, thus impressing the tooth pattern on the edge. The plow is then pushed parallel to the file grooves. It "plows" out the imbedded chips and dirt. When a file of different tooth-spacing is to be cleaned, a new edge of the plate is used. Plates are long lasting, and when worn may be replaced at low cost. When non-metallic dirt is to be removed, the regular file card with its tempered steel wire teeth is used. This special file cleaner, on which patent is pending, is listed as No. 366 in the company's catalog. Catalog sheet on request.

CINCINNATI TOOL CO., Dept. CP, 4010 Montgomery Rd., Cincinnati 12, Ohio.

When inquiring specify CP A2306  
— see information request blank, pgs. 2-3



- Cadmium Plated Inside and Out
- High-Grade Woven Monel Wire Screen
- Readily Removed Steel Blow-Off Bushing
- Screen and Bushing Come Out Together—Go Back Together, Automatically Aligning
- For Steam Lines or Water, Oil and Other Fluids
- Reasonably Priced
- 6 Sizes from 1/2" to 2" for Pressures up to 600 lbs
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See Your Supply House or  
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**YARNALL-WARING COMPANY**  
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# YARWAY STRAINERS

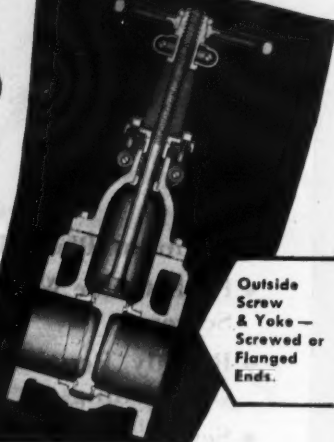
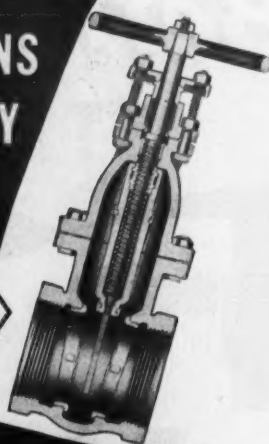
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**PATTERNS  
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Non-Rising Stem—  
Screwed, Flanged,  
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Screwed or  
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For anything in Piping Materials, Call CRANE!

# CRANE

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

When inquiring specify CP A2308 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Expanded Lead Lined Steel Pipe and Prefabricated and Standardized Lead Fittings

A twenty-page booklet is devoted to an interesting and practical presentation of features and uses of expanded lead lined steel pipe for the process industries. This acid resisting pipe serves a number of requirements involving chemicals and gases, especially sulphuric acid, alum, brine, etc. The organization offers recommendations by its research department where previous operating data does not exist. Of interest is a brief discussion of the two methods by which Homogeneous Lead Lined Steel Pipe has been produced. Comparison is made between the use of extruded lead pipe as a lining for banded steel pipe and the use of a poured homogeneous lead lining, and hydraulic expansion process. It is stated that it is not necessary with expanded lead steel pipe to specify the same excess thickness of lead employed in lead or lead alloy pipe or in homogeneous lead lined pipe to withstand normal corrosion or high pressures except when accompanied by other severe operating conditions. The booklet includes a section on "General Features" including data on thicknesses, lengths, flanges, gaskets, etc. This expanded lead lined steel pipe is produced in sizes from 1-24 inches. The company is also prepared to supply homogeneous lead lined steel pipe, produced by pouring method as well as lead and lead alloy pipe. Of related interest is another booklet, which gives similar detailed treatment to prefabricated and standardized lead fittings. Fittings and component parts are extruded, not hand fashioned. In diameters from 2 inches inside to 12 inches inside diameter. Both these booklets are available on request.

AMERICAN SMELTING & REFINING CO., Dept. CP, 119  
Binney St., Cambridge, Mass.

When inquiring specify CP A2309 — see information request blank, pgs. 2-3

**SAVE LABOR  
in Handling  
BARRELS and  
DRUMS!**

Write for  
**NEW  
free  
BULLETIN  
now!**

**SABIN  
One-Man TRUCKS**

● With this amazing truck,  
one man easily handles barrel or drum loads up to 800 lbs. He does no lifting, carries no weight, needs no helpers. **THIRD WHEEL FEATURE** adds to ease of loading, gives better load support and balance.

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6536 Carnegie Avenue, Cleveland, Ohio

**PRICE \$33.50**

With semi-steel roller  
bearing wheels



Exclusive  
Third  
Wheel  
Feature

Type  
"L-3"

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# BUMP PUMPS

POSITIVE DISPLACEMENT AT ANY  
SPEED OR PRESSURE

Bump Industrial  
Variable Speed  
Model

Bump Industrial  
V-belt Model

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Model

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— free upon  
request.

**The BUMP PUMP CO.**  
LA CROSSE • WISCONSIN

When inquiring specify CP A2311 — see information request blank, pgs. 2-3

**372,444 GALLONS  
of Flammable Liquids  
IN 9 HUGE ROOMS**

**Protected by**

### ONE Cardox Fire Extinguishing System

● The two oil storage rooms illustrated here . . . plus seven others and a long pipe tunnel . . . represent a major fire hazard in one of America's large war plants. All nine rooms and the pipe tunnel . . . 941,140 cubic feet . . . are guarded by a single engineered Cardox Fire Extinguishing System.

Here is only one of hundreds of examples of how engineered Cardox Fire Extinguishing Systems utilize fast-acting, non-damaging, inexpensive carbon dioxide to provide enhanced extinguishing performance in protecting large and small hazards. Write for Bulletin 1635. It shows why Cardox should have a place in your fire protection plans.

**CARDOX CORPORATION**, Bell Building, Chicago 1, Illinois

When inquiring specify CP A2312 — see information request blank, pgs. 2-3



## NEW LITERATURE

### Regulators for Welding, Cutting

Booklet illustrates safety regulators for welding, cutting and allied flame applications. The models shown include an unusual single stage reduction regulator for cylinder gases, being unusually accurate in pressure maintenance, its inherent design incorporates great freedom of seat motion. Hourly gas capacity ample for all purposes. Another series of these regulators is primarily for line service, for station outlets on oxygen, acetylene, hydrogen or compressed air distributing systems. Also shown is two stage reduction type. Their great advantage is freedom from freezing and delivery pressure accuracy; high and low pressure stage seat mechanisms easily accessible through the rear housing. Copies of Form 40 on request.

VICTOR EQUIPMENT CO., Dept. CP, 844 Folsom St., San Francisco, Calif.

When inquiring specify CP A2315  
— see information request blank, pgs. 2-3

### Steel, Alloy Pressure Vessels and Heavy Plate Work

An unusually interesting illustrated bulletin features more than fifty illustrations, each one of a different piece of processing equipment and gives essential details of the requirements which each of these units meets. These include a special horizontal autoclave, steam jacketed laboratory reactor, welded creosoting cylinder, horizontal jacketed type rotary devulcanizer, an experimental digester built for 25 pounds working pressure; test 500 lbs. and horizontal sulphite digesters. Other equipment which is listed as produced by this organization are: mixers, scrubbers, fractionating towers, rotary dryers, cone blenders, coolers, sterilizers, (industrial) mixing tanks and kettles. Copies of bulletin Number 45 on request.

BIGGS BOILER WORKS CO., Dept. CP, Akron 5, Ohio.

When inquiring specify CP A2316  
— see information request blank, pgs. 2-3

### Operation and Care of Metal Working Lathes

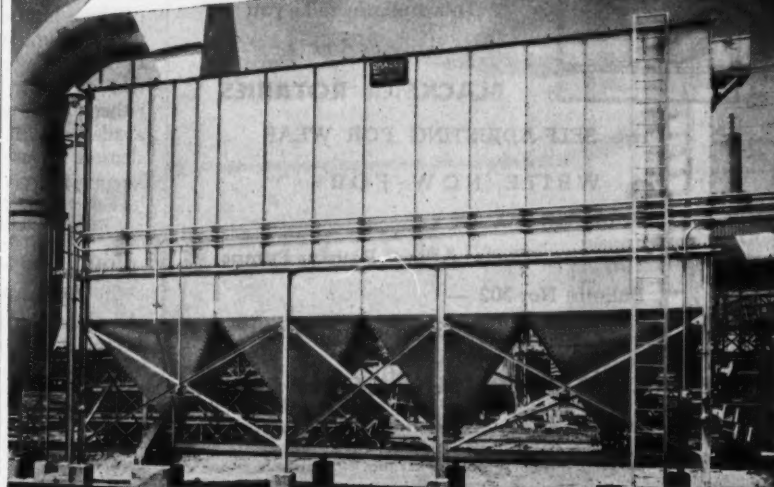
New edition of book — "How to Run a Lathe" incorporates a number of changes in text material and illustrations. It contains the very latest information on operation and care of metal working lathes. The edition contains 128 pages — 5 1/8 x 8 ins. and more than 365 illustrations. Copies are 25c for paper covered, 75c for leatherette covered. Remittances should be sent DIRECT to address below and may be in stamps. Request for additional information concerning this book may however, be indicated on slip.

SOUTH BEND LATHE WORKS, Dept. CP, 355 E. Madison St., South Bend 22, Indiana.

When inquiring specify CP A2317  
— see information request blank, pgs. 2-3

## DUST in Large or Small Amounts

# IS ALWAYS A HAZARD



## USE DRACCO DUST CONTROL

☆ Dust, even in small amounts, should be promptly eliminated. It is always a hazard that impairs equipment and slows production. DRACCO makes Unit Filters to control dust from one machine or operation and Dust Control Systems for removing dust and gases from an entire plant regardless of size. In many installations the valuables recovered soon paid for the entire system. If you have dust get the expert advice of DRACCO Engineers. For over 30 years they have corrected dust conditions of every description.

For Further Information Write

## DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT  
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring specify CP A2318 — see information request blank, pgs. 2-3

PUT  
THESE

HERE

## Surety SURESEAL SYNTHETIC RUBBER GLOVES Return Absent Hands!

Keep needed hands "on duty". Avoid rubber allergies and dermatitis with protective gloves made of hard-to-snap, abrasion resistant Surety Sureseal Synthetic. Patented Turn-cuffs provide maximum safety. Cuffs up prevent skin-irritating liquids from running down arm—cuffs down add two inches of welcome safeguard. Laboratory and users tests prove you get up to 14 times the service life of natural rubber or other synthetics in Surety Sureseal, the extra-long-wearing glove.

Send for your Surety Glove Selector—takes the guesswork out of glove buying. Do it now!



THE Surety RUBBER COMPANY  
CARROLLTON, OHIO

When inquiring specify CP A2313 — see information request blank, pgs. 2-3



VAPOR-TIGHT  
Where lighting  
must not fail



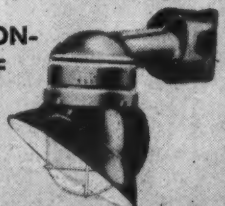
Work, travel and play at night are here to stay. Operations out-of-doors, underground and in vapor and gas-laden atmospheres are on the increase.

Equipment failures are inexcusable, because there is a time-tried Russell & Stoll fitting and fixture for every known hazardous location. Besides lighting fixtures, plugs and connectors, R & S provides switches, circuit breakers and a score of accessories for outdoor and restricted areas.

Supplied as single units or combined on a panel, these products are precision-built and based on a specialized experience of more than forty years. Sold by jobbers everywhere. Ask for the 300 page R & S catalog.



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125 BARCLAY STREET - NEW YORK 7, N. Y.

When inquiring specify CP A2314 — see information request blank, pgs. 2-3



## FACTS/ about ROTARY PUMPS

This bulletin tells you  
why and how

**BLACKMER ROTARIES**

are **SELF-ADJUSTING FOR WEAR**

**WRITE NOW FOR  
BULLETIN NO. 306 —**

**Facts About Rotary Pumps.  
Bulletin No. 302 —  
Pump Engineering Data.**

**BLACKMER PUMP COMPANY**

1840 Century Ave., Grand Rapids 9, Michigan

*Serving Industry for More Than 40 Years*

**POWER PUMPS - HAND PUMPS  
- EZY-KLEEN STRAINERS -**

When Inquiring specify CP A2319 — see information request blank, pgs. 2-3

## NEW LITERATURE

### Units for Industrial Refrigeration and Air Conditioning

Refrigeration units for use in air conditioning, product and industrial refrigeration are described in a series of illustrated bulletins, each covering a particular size model in a wide range in sizes from 1/4 HP to 100 HP using Freon-12 or Methyl Chloride as the refrigerant. Capacities range from 500 BTU's per hour to 1,500,000 per hr. These units combine high efficiency and accessibility in minimum space with minimum weight. Adequate lubrication is assured by splash system in small models and by forced-feed system in larger models. Small models are available with either air or water cooled condensers. Larger models are available with water cooled condensers, or without condensers for use with maker's shower condensers.

WORTHINGTON PUMP & MACHINERY CORP., Dept. CP, 744 Broad St., Newark, N. J.

When Inquiring specify CP A2320 — see information request blank, pgs. 2-3

### Couplings — Flexible, Rigid Flanged Face, Compression Types; Plastic & Steel Casings

An eight page illustrated book gives complete details on a complete line of shaft couplings. Sizes, dimensions, and list prices are given for couplings of flexible, rigid flanged face and compression types, with special emphasis on the "Type RC" roller chain coupling. Detailed information is also given on protective casings for the "Type RC" coupling. This includes two styles of revolving casings ("R" and "P") and a type "S" stationary-mounted casing. The type "P" is a plastic casing; the others are made of steel.

LINK-BELT CO., Dept. CP, 307 N. Michigan Ave., Chicago, Ill.

When Inquiring specify CP A2321 — see information request blank, pgs. 2-3

## Simplicity Gyrating Screens



Simplicity Gyrating Screens are available in 63 different sizes or models.

"Write for further information"

View shows a battery of five Simplicity 3' x 6' Single Deck Screens, part of sixteen units operating in a Western starch plant. These screens are used for germ separation, for clean-up and for the various washing operations. Feed is at the rate of 90 gallons per minute per each machine equipped with 150 mesh cloth.

Using Simplicity Gyrating Screens in place of reels enabled this company to handle a 52% greater grind and at the same time reduce the amount of starch in the wash tailings by 20%.

**SIMPLICITY ENGINEERING COMPANY**  
DURAND, MICHIGAN

*For Canada: Watrous Limited, Brantford, Ontario*

When inquiring specify CP A2322 . . . see information request blank, pgs. 2-3



LINE strains, high temperatures and pressures will distort the body of any valve. Only Darling fully revolving double disc parallel seat gate valves have the curved wedge face and transverse bevels that permit the gate to adapt itself to out-of-line positions the valve seats may assume.

The valve assembly consists of four simple parts—two discs, two wedges. These can easily be removed for inspection or maintenance without taking the valve from the line. When the valve closes, the two wedges force the discs firmly against the valve seats. On opening, the first quarter-turn instantly releases the wedges and frees the discs to be raised with less seating wear.



The discs are fully revolving through 360° and seat themselves in a different position each time the valve is closed. Thus wear on disc and seat is uniform, and life-long, tight closing results.

For drop-tight closing, year after year, for long, economical, trouble-free service, specify Darling Valves.

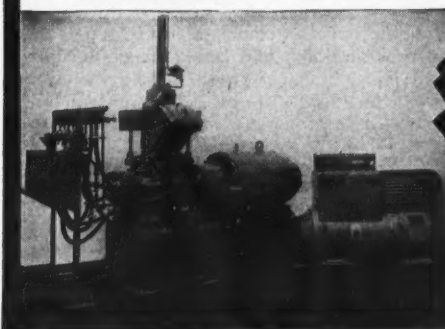
**DARLING VALVE & MANUFACTURING CO.**  
WILLIAMSPORT, PA.

When Inquiring specify CP A2323 — see information request blank, pgs. 2-3

## DIRECT DRIVE

*..All-Electric*  
**..ADJUSTABLE-SPEED**  
**..FOR A-C. CIRCUITS**

Reliance V\*S Drive eliminates intermediate speed-changing devices. Power is closer to where it is needed, requiring only a coupling, chain or belt. Permits simplified machine design and operation. Write for Bulletin 311.



**RELiance ELECTRIC & ENGINEERING COMPANY**  
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*Sales Offices in Principal Cities*

When Inquiring specify CP A2324 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## INSTANT PROTECTION

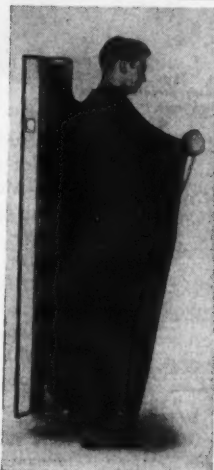
WHEN CLOTHING IS **AFLAME**

THE M.S.A.

## FIRE BLANKET

Providing an indispensable refuge wherever fire may imperil the worker, the M.S.A. Fire Blanket is compact, efficient, always ready for service at every danger point in the plant—offering lightning action; positive, foolproof operation; assured protection.

Write for complete details in Bulletin FA-80.



## MINE SAFETY APPLIANCES CO.

Braddock, Thomas and Meade Streets • Pittsburgh, Pa.

District Representatives in Principal Cities

When Inquiring specify CP A2325 — see information request blank, pgs. 2-3

Many Engineers Ask:  
"CAN RODNEY HUNT SUPPLY ROLLS  
FOR Special MACHINE WE ARE  
BUILDING?"

The answer is: "Yes, that's just what we do!" We build hundreds of such rolls each year. Engineers tell us the size and purpose of the rolls needed for a new machine — and we do the rest. Usually an exchange of ideas between machine builder and roll builder is of great help in getting the best design and construction. Our "Shaf-tite" patented constructions plus years of experience are of far-reaching practical value. Tell us your problem.

**RODNEY HUNT MACHINE COMPANY**

273 Maple Street

Orange, Massachusetts

## NEW LITERATURE

### Rotary Type Heat Sealer

A rotary type crimp sealer that seals cellophane, plastic treated bag caps, and all other heat sealing materials is illustrated and described in bulletin just issued. It fastens to bench or table and can be fed by hand or conveyor. Raising or lowering is accomplished by a hand operated screw feed to accommodate bag sizes from 1½" to 15" in height. A conveniently located dial controls temperatures up to 700 degrees F. All working mechanisms are equipped with precision ball bearings. Brass rollers are in perfect alignment within .001 of an inch and are adjustable to any thickness. There are no brushes or commutators to wear out. All moving parts, belts and pulleys are safely guarded. Speed of 240 lineal inches per minute, seals bags as fast as they can be fed. The sealer operates on 110 v., AC current.

CODIE KAY CO., Dept. CP, 1139 San Julian St., Los Angeles, Calif.

When Inquiring specify CP A2327  
— see information request blank, pgs. 2-3

### Incinerators For Combustible Process Plant Wastes

Incinerators and destructors suitable for installation in food processing plants are described in an eight page two-color illustrated folder. The selection includes types to handle all types of combustible wastes such as spent hops, garbage, waste oil, sawdust, etc. Flue Fed and other model incinerators feature special air box and air injector nozzles. First pre-heated oxygen is fed directionally into the burning mass to support primary combustion, then other nozzles feed air to rising gases to insure complete combustion. Copies of Bulletin 160 on request.

MORSE BOULGER DESTRUCTOR CO., Dept. CP, New York 17, N. Y.

When Inquiring specify CP A2328  
— see information request blank, pgs. 2-3

### Wire Cloth Handbook

Catalog No. 12, containing 56 pages chock full of data on industrial wire cloth, has just been published and provides a valuable reference book for users and purchasers of industrial wire cloth. The following headings are typical of the completeness of this catalog-handbook: How to Order; Explanation of Mesh, Space, Gauge, Percentage of Open Area, Proper Screen; Types of Weaves; Proper Selection of Metal; Special Weaves for Special Purposes; Finishing Tables on all mesh sizes facilitate both specifying and purchasing. Simple formulae permit users to work out their own measurements of open area, width of opening, weights etc.

BUFFALO WIRE WORKS CO., INC., Dept. CP, 419 Terrace, Buffalo 2, N. Y.

When Inquiring specify CP A2329  
— see information request blank, pgs. 2-3

## BELT IDLERS

For belts 14 to 48 inches wide. The pulleys are sturdy, rugged, built with straight sides to shed dust and rounded corners to prevent injury to the belt. They are evenly balanced and run true insuring long life. Furnished troughed or flat, in standard and many special designs.



## CAR PULLER

A rugged self-contained unit for moving cars about a yard without calling a yard engine. Rope pull of 5,000 lbs is sufficient to haul a 165 ton load on level track, or 100 tons up a 1% grade. Complete details of puller and accessories furnished on request.



## HAND WINCH

Worm geared and self-locking to hold the load in any position, this winch is ideally used for lifting and lowering heavy door, pots, kettles, bins, chutes, etc. Ten sizes are standard, can usually be shipped promptly from stock.



## THE C.O. BARTLETT & SNOW CO.

6270 HARVARD AVE. • CLEVELAND 5, OHIO

DRYERS, COOLERS, CALCINERS AND KILNS

BOILER PLANT COAL AND ASH HANDLING SYSTEMS

CONVEYORS, CRUSHERS, FEEDERS, SCREENS

When Inquiring specify CP A2330 — see information request blank, pgs. 2-3

When Inquiring specify CP A2326 — see information request blank, pgs. 2-3

# 6 Easy Steps to the right answer to your pulverizing problem

**1** Send us a quantity of the material you desire to grind together with complete information on its physical characteristics and the results you desire.

**2** Check will be made against records of our experience based on findings in over 22,000 tests on all kinds of materials.

**3** Your material will be given test grinds on regular production Mikros of all standard sizes.

**4** A full report outlining the proper procedure will then be rendered giving you full information as to all our findings.

**5** Definite recommendations on proper size and type unit will be made based on study of these test results.

**6** We are then prepared to submit a formal proposal with adequate performance guarantees and full specifications of the machine recommended.

Satisfied users of over 4,000 Mikros have found this procedure the right answer to their pulverizing problems, to obtaining a higher return on their investment, greater efficiency in their production operation. This takes guesswork out of your pulverizing. These facilities are available without obligation.

SEND a 5 to 50 lb. sample and full information about your material, or send for Confidential Test Grinding Data Sheet.

\*Trade Mark Reg. U. S. Pat. Off.

## PULVERIZING MACHINERY COMPANY

60 CHATHAM ROAD • SUMMIT, N. J.

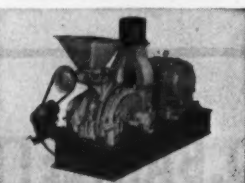
NOW... 2 TYPES TO MEET MOST PROCESS JOBS

# MIKRO-PULVERIZER -ATOMIZER\*

### MIKRO-PULVERIZER



### MIKRO-ATOMIZER



## NEW LITERATURE

### Flat Glass for Industrial Buildings

Flat glass for industrial buildings in a wide selection of designs and types to meet a great number of requirements is pictured and described in an attractive twelve-page booklet. Nearly a score of patterned glass types are illustrated and their special features described. These include: hammered, ribbed, luminex (for maximum light admission), skytex (skylights), polished wire glass (non-scatterable, fire-retardant), florex (especially suitable for fluorescent light fixtures). Also heat absorbing glass which keeps interiors cooler; frosted glare reducing glass. Also of interest is section giving data and showing photos of tempered plate glass for such applications as inspection glasses, helmets, fire-fighting shields, industrial furnaces. "Thermopane" insulating glass consisting of two or more panes of glass separated by 1/4 in. or 1/2 in. of dehydrated air and hermetically sealed around the edges with metal, permanently bonding the panes of glass into one unit and preventing dirt and moisture from entering the air space. Specifications and all essential data concerning all the various types of glass shown are conveniently tabulated. Copies of "Flat Glass for Industrial Buildings" are available on request. LIBBEY-OWENS-FORD GLASS CO., Dept. CP, Toledo 3, Ohio.

When Inquiring specify CP A2332 — see information request blank, pgs. 2-3

### Friction Materials for Industrial Equipment

Catalog describes an extensive line of friction materials including woven, folded and compressed, molded, semi-metallic and full metallic, each made in a number of types and structural modifications to suit the specific needs of industrial equipment.

MANHATTAN RUBBER MFG. DIV. (Raybestos-Manhattan, Inc.), Passaic, N. J.

When Inquiring specify CP A2333 — see information request blank, pgs. 2-3

## Faster Materials Handling

... A "MUST" FOR SWINGING INTO  
YOUR RECONVERSION STRIDE ...

## Weld-Bilt HYDRAULIC LIFT TRUCKS WILL SPEED YOUR JOBS

NOW is the time to call in a Weld-Bilt Materials Handling Engineer to make a detailed survey of your operations, and suggest ways to use standard or specially designed equipment that will handle your materials FASTER — save you time and money. There's no obligation for this service — write for complete information.



**WELD-BILT** Hydraulic Lift Truck. Handles heavier loads easier. Strong — mobile — durable. Exclusive horizontally-mounted hydraulic unit. 2500 to 10,000 lbs. capacity.

## WEST BEND EQUIPMENT CORP.

226 WATER STREET, WEST BEND, WISCONSIN  
MATERIALS HANDLING ENGINEERS

Hydraulic Lift Trucks, Two and Four-Wheel Trucks, Towing Machines, Skid Platforms, Barrel Trucks and Racks, Portable Elevators and Special Equipment.

When Inquiring specify CP A2334 — see information request blank, pgs. 2-3



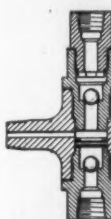
"L" Type motor driven dual unit.

... they stay on the job!

# HILLS McCANNA

proportioning pumps

WHEN the success of a process rests on the dependability of a proportioning pump, be sure with a Hills-McCanna — the QUALITY leader! A pump for every application—8 types; 200 sizes; capacities to 1500 G.P.H.; pressures to 22,500 psi. For dyes, inhibitors, feed water treatment, catalysts, acids, caustics, etc. Complete specifications in CATALOG P-44. Write for a copy.



Positive action composite check valves improve performance.

## HILLS-McCANNA COMPANY

2370 W. Nelson Street, Chicago 18, Ill.

Proportioning Pumps — Force-Feed Lubricators — Chemical Valves  
Air & Water Valves — Marine Valves — Magnesium Alloy Castings

When Inquiring specify CP A2335 — see information request blank, pgs. 2-3

## ALSOP "HY-SPEED" FILTERS



## The ALSOP Disc...it's very important

Two Filtering Surfaces...resulting in extra high capacity  
Graded Layers of Fibers...preventing "blinding" by slime  
Wide Range of Densities...permitting close selectivity

The filtering element in any filter is an important factor. In ALSOP Hy-Speed FILTERS it is the important element, for it is so designed and constructed as to provide an exceptionally high flow of clear—no not even cloudy—filtrate.

The whole story of ALSOP Hy-Speed FILTERS is told in a descriptive folder. In writing, please give full details of the solution to be filtered.

# ALSOP Engineering Corp.

18 ALSOP SQUARE, MILDALE, CONN.

When Inquiring specify CP A2336 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

When Inquiring specify CP A2331 — see information request blank, pgs. 2-3



## NEW LITERATURE

### How to Install Flexible Metal Hose

An engineering data file which is a complete manual on the installation of flexible metal hose contains over sixty pages of photographs, specifications, and line drawings. The latter having been developed out of the experience of the company's engineers to show the correct installation practices for getting maximum serviceability out of hose. Sections are devoted to showing photographically how to assemble detachable self-sealing hose couplings and self-flaring fittings for copper and plastic tubing right on the job, thus effecting important savings. The complete line of hose constructions are described.

PACKLESS METAL PRODUCTS CORP., Dept. CP, New Rochelle, N. Y.

When inquiring specify CP A2337 — see information request blank, pgs. 2-3

### Solenoid Shut-Off and 2, 3, 4 Way Pilot Valves for Liquid, Gas, Flow Control

A twelve-page illustrated bulletin is devoted to a detailed and practical presentation of a large selection of solenoid valves for the automatic and remote control of the flow of liquids and gases. All solenoids used in these valves are designed and made by the organization. In general two basic constructions are available: "Packless" and "Packed." The "Packless" is constructed with the solenoid mounted directly on the valve body. A rigid permanently sealed tube encloses the moving solenoid core which is attached to the valve stem without any intervening stuffing box or flexible type seal. Solenoid coils are removed from the assembly without removing the valve from the pipe line. Generally for service at below 212° F. these units are sometimes used with high temperature resistant coils for higher temperatures. "Packed" valves are used for the higher temperatures. High powered solenoids provide positive operation. Large valves have rotary type operating stuffing boxes, and small sizes have sliding stems with short strokes and extra deep stuffing boxes. The line also includes a varied selection of explosion-proof valves. Several pages are devoted to illustrations and data on 2, 3, and 4 way pilot valves. Copies of Circular 200 on request.

AUTOMATIC SWITCH CO., Dept. CP, 41 E. 11th St., New York 3, N. Y.

When inquiring specify CP A2338 — see information request blank, pgs. 2-3

### Portable Parts Cleaning System for Cold Solutions Handles Large, Small Parts

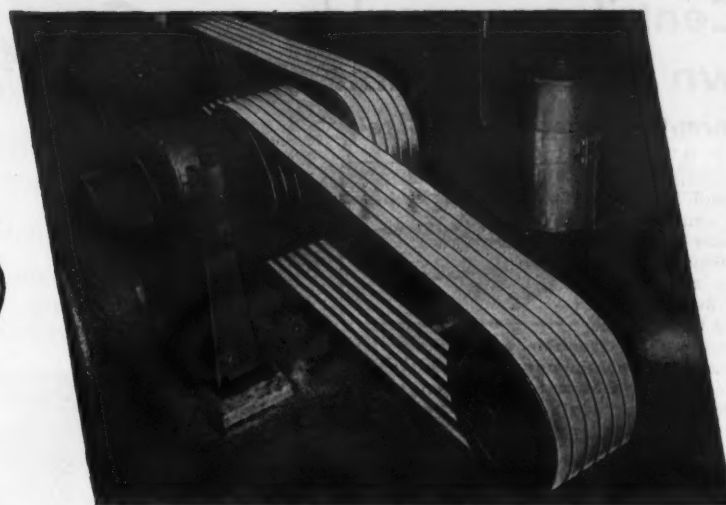
Operation and features of a portable parts cleaning machine are interestingly discussed in an attractive illustrated folder and emphasizes the manner in which it thoroughly cleans small and large parts. This equipment combines the utility of two washers in one self-contained, portable unit. Large parts are cleaned of grease and grime by a string stream of solvent pumped from a tank below. Smaller parts such as screw machine products, may be washed in quantity by merely pouring them in the basket and immersing in solvent. A simple hand operated "swisher" device speeds the cleaning operation by providing a convenient method of agitating the cleaning fluid. Solvent is saved by filtering and permitting reuse. The unit is for cold cleaning solutions, no heating required. Large parts are hoisted clean quickly and adjustable nozzle enables operator to control flow from a mere trickle to a strong stream. The pump is mounted on the frame of the unit; air cooled electric motor is enclosed in splash proof housing. Dimensions 35 3/4 x 21 x 36 inches. Construction is heavy gauge steel; hinged safety covers. Pump motor is 1/30 HP.

GRAY MILLS CO., Dept. CP, 1948 Ridge Ave., Evanston, Ill.

When inquiring specify CP A2339 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

HERE IS A FACT  
WORTH KNOWING



## GATES Standard VULCO ROPES

—now made of **Synthetic Rubber** are  
**OUTWEARING** even pre-war belts of NATURAL RUBBER!

NO ONE before the war had ever built a V-Belt that could stand the service now daily delivered by Gates V-Belts on army tanks, tractors and self-propelled big guns. Gates developed these greatly superior V-Belts through intensified, specialized research—and Gates is building these belts entirely of synthetic rubber.

✓ The importance of this fact to industrial V-Belt users is this:

Every improvement developed by Gates for these Army V-Belts has also been added, day by day, to the quality of the standard Gates Vulco Ropes which have been delivered to you.

It is only rarely, of course, that improvements developed primarily for army combat use can be passed on immediately to the general user—but there are very good reasons why Gates has not been called upon to withhold these important V-Belt improvements from Industrial V-Belt users.

Efficient production in our nation's industrial plants is a prime essential to our winning of the war—and better V-Belts than ever before have been urgently needed to keep machines going on the forced-draft, war production schedules that have had to be maintained 24 hours a day!

That is why Gates has been able to embody in the standard Gates Vulco Rope every V-Belt improvement which Gates specialized research has developed for use on the Army's motorized equipment—and that is why you are finding that your standard Gates synthetic-rubber Vulco Ropes are today giving you better service than any V-Belts that were built before the war.



## THE GATES RUBBER COMPANY

Engineering Offices and Jobber-Stocks in All Large Industrial Centers

# GATES VULCO ROPE DRIVES

CHICAGO 6, ILL. 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue ATLANTA 3, GA., 738 C. & S. National Bank Bldg.  
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway DETROIT 4, MICH., 8663 Grand River Ave.  
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL. 1090 Bryant St.

When inquiring specify CP A2340 . . . see information request blank, pgs. 2-3

## "Our Centrifuges would be down 50% of the time

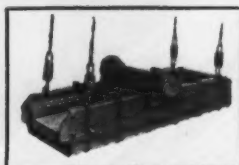
... if it weren't for that Hydrex Screen"

Centrifuges and filters are costly; they can amortize their cost only while at work. When they are down, production is curtailed or even stopped. But one manufacturer found that a Robins Hydrex Screen—with a cleanable, sanitary, very-fine-mesh stainless steel cloth—introduced before the fluid enters the centrifuges, prevents particles larger than 1.2 microns from passing into the line. Hence no more cloggings or delays.

The plant superintendent reports: "The Robins Hydrex Screen, installed 7 months ago, has more than justified its cost by increasing production without it our centrifuges would be down 50% of the time. We're still using the original cloth."

Detailed information is available on request or an actual demonstration in your plant may be arranged. When writing, please address Dept. CP-7.

For Material Aid in  
Materials Handling It's ROBINS



When inquiring specify CP A2341 — see information request blank, pgs. 2-3

## Equipment for Production

### Valve Type Multiwall Paper Bags and Filling Machines For Packaging of Chemical Products

Valve packer and multiwall paper valve bags eliminate the need for any closing equipment: units are available to meet producers production requirements



Operator works in comfort... no lifting

manganese ore, pigments, plaster, salt, silica, soda ash, sulphur and talc.

Features — Use of valve bags and valve bag packers eliminates the necessity for any closing equipment. Packaging

Uses — For packaging 25 to 100 lbs. of chemical products such as activated carbon, aluminum sulphate, barium sulphate, bicarbonate of soda, calcium chloride, cement, clay, diatomaceous earth, fertilizer, insecticides, lime & limestone (hydrated lime, limestone),

machines are available to meet a vast range of general and specific needs. The type machine varies according to the product to be packed and the production requirements of the producer. Machines are designed to preweigh the product or bags can be filled and weighed simultaneously. The simplicity of operation and the automatic discharge of filled bags from the machine to the conveyor makes it possible for women or inexperienced help to operate this equipment.

Description — The valve bag is constructed of several independent walls of tough kraft paper which is custom made to protect products in transit and storage. Except for a small opening in one corner called the valve, the bag is factory closed, that is, the top and bottom are closed by sewing or pasting and one small opening is left in one corner. This valve serves to admit the material to the bag. The valve closes automatically because of the internal pressure of the contents of the bag. In order to prevent the possibility of sifting and to protect against micro-organisms, the valve of the bag may be equipped with a sleeve which is tucked into the valve as soon as filling is terminated. The multiwall valve paper bag packing machines are of four basic types: screw, belt, impeller and gravity; so called because these are the methods by which the materials are propelled through the filling tubes into the bags. Variations of these four basic types of packing machines have been designed for the economical packaging of more than 100 products. In packing with the machines of the screw principle type, material is delivered to a hopper where its continuous flow is assured by an agitator. The product moves into a feed screw and is

## REAP THE BENEFITS OF

### MACHINE SEWED BAG CLOSURES

WITH UNION SPECIAL BAG CLOSING MACHINES

With the line of Union Special filled bag closing equipment available, there is no reason any plant, regardless of size, should not have the benefits of machine sewed bag closures. Union Special offers machines for closing fabric or paper bags of one pound or less, up to the largest jute or multiwall bags manufactured. Equipment includes sewing heads, columns, tables, conveyors and accessories. No other method of bag closing has ever offered the same production possibilities, economy, flexibility and security of closure. For full information write for Bulletin 200.

Union Special Machine Company

442 N. Franklin Street  
Chicago 10, Illinois

ORIGINATORS OF FILLED BAG CLOSING EQUIPMENT

CLASS 14500—for closing light and medium weight cotton, burlap and paper bags. Double locked or chain stitch as desired.

CLASS 80600—for closing heavy bags, either paper or fabric. Fully enclosed for protection of parts from dirt and foreign matter. Double locked or chain stitch.

STYLE 60000 D—for producing the famous Union Special Double Top sewed closure on paper bags of from 1 lb. to 50 lb. size. Widely used for consumer packaging.

## "Our 11 BAKER TRUCKS have given us Continuous 24 hour service for 4 years"



According to N. J. Shibley, Superintendent of Building and Property Maintenance at Thompson, their Baker Crane Truck and ten Baker Fork Trucks are as good as new after serving three shifts per day for nearly four years—the equivalent of 12 years of normal service. No truck has been overhauled, there have been only a few minor mechanical failures, and maintenance has been almost negligible.

Except for 1/2 hr. per day, per truck for routine servicing and inspection and for a ten minute period between shifts when trucks are idle, they have been giving "round-the-clock" service for four years and, says Mr. Shibley, "if we continue to take good care of them, they should last indefinitely." That's Continuity!

Write for "Industrial Truck Care Pays You Dividends."

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Rauland Co.  
2163 WEST 25TH STREET • CLEVELAND, OHIO

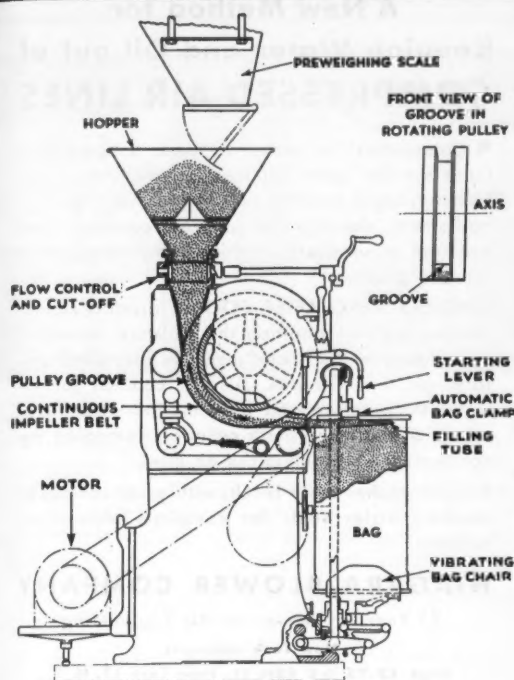
**Baker INDUSTRIAL TRUCKS**

When inquiring specify CP A2343 — see information request blank, pgs. 2-3

When inquiring specify CP A2342 ... see information request blank, pgs. 2-3



## PRODUCTION



BELT TYPE VALVE BAG PACKING MACHINE

forced through the filling tube into the multiwall paper valve bag. The belt type machine employs an endless flat belt principle which picks up material as it flows through a groove in a rotating pulley. The belt accelerates the material at an angle of 90° and at sufficient speed to discharge it through the filling tube into the bag. In packing material by the impeller principle, the product is delivered from a bin to a receptacle enclosing the impeller. The rotary action of the impeller forces the material through the filling tube into the valve bag. The gravity type packer is a low production machine for packing free flowing products into the valve bag. The material is fed from a supply bin to the machine hopper. Bag clamps hold the bags securely to the filling tube as the materials flows into the container. The production of various type valve bag packing machines ranges from 1 to 8 100 lb. bags per minute with the use of one operator based upon the type of product being packed and the type of machine used. Detailed information concerning the various units and their application to packaging specific material is available upon request.

ST. REGIS PAPER CO., Dept. CP, 230 Park Ave., New York 17, N. Y.

When inquiring specify CP A2344 — see information request blank, pgs. 2-3

### Complete Data for Selection of Rotameters

A new publication on rotameters contains, in addition to catalog on the maker's line, helpful data on the selection of a rotameter for any particular service. Specific gravities of gases and of various metals used in floats are given together with formulae for converting water and air capacities to terms of other liquids and gases. Other selection factors, such as pressure drop, length of scale and float material are covered in this interesting publication, No. R-100A. Copies are sent on request.

COCHRANE CORP., Dept. CP, 17th & Allegheny Ave., Philadelphia, 32, Pa.

When inquiring specify CP A2345 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

# Edge Moor...

## FOR HEAVY-WALL WELDED PRESSURE VESSELS



Petroleum Pressure Vessel on test floor. 7' diam. by 35', for 225 lbs. pressure. Carbon steel, completely X-rayed and stress relieved.



Carbon Steel Jacketed Vessel with bolted cover for 100 lbs. working pressure. Main shell X-rayed and entire vessel stress relieved.

Process equipment of all types in metal thicknesses up to 2½" is fabricated by Edge Moor to individual designs, specifications or requirements. Materials include carbon and stainless steels, nickel, Everdur, Monel, Nichrome and clad metals. We are regularly producing work to ASME Code paragraph U-68 requirements, with all welded seams stress relieved and inspected by X-Ray.

Write for Edge Moor Bulletin 113 which illustrates and describes typical examples of equipment we have produced for chemical and petroleum plants. If your requirements are specific send drawings and specifications for prompt quotation.

**PROCESS EQUIPMENT FABRICATORS:**

# EDGE MOOR

BRANCH OFFICES: NEW YORK 20, N. Y.: 30 ROCKEFELLER PLAZA  
CHICAGO 2, ILL.: ONE NORTH LA SALLE STREET

MAIN OFFICE: EDGE MOOR, DELAWARE

When inquiring specify CP A2346 . . . see information request blank, pgs. 2-3

## WHAT HAPPENS HERE...



### DETERMINES THE CORROSION RESISTANCE of your Processing Equipment

It looks simple! A sheet of stainless steel goes into a fabricator's plant, out comes a processing vessel built to specifications.

And, theoretically, if the specifications have been followed, one fabricator can make as good a vessel as another.

But it doesn't work that way. The corrosion resistant alloys present tough problems during fabrication. Unlike carbon steels, they have special properties which must be preserved. Any fabricator can build equipment of metal, but it takes a high degree of specialization to build alloy equipment with maximum retention of the original properties.

Strength and corrosion resistance—easier cleaning—lower operating costs—you have a right to demand these qualities in your stainless steel equipment.

For more than 50 years we have been building equipment from corrosion resistant alloys. Our mechanics and engineering staff are trained for this work. Our plant machinery, our tested procedures—have been designed for it. When next you order corrosion resistant equipment, get the extra protection our experience, skill and techniques offer. Consult with us. S. Blickman, Inc., 707 Gregory Ave., Weehawken, New Jersey.

SEND FOR THIS  
VALUABLE BOOK

A request on your letter-  
head will bring our  
guide, "What to Look  
For When You Specify  
Stainless Steel for Your  
Processing Equipment."



**S. BLICKMAN, INC.**  
Guards Alloys in Fabrication

CORROSION RESISTANT PROCESSING EQUIPMENT



When Inquiring specify CP A2347 — see information request blank, pgs. 2-3

## PRODUCTION

### Furnaces For Bright Annealing, Copper Brazing and Sintering

For temperatures 1200°-2400° F.

**Uses** — For temperatures between 1200° and 2400° F. in such operations as bright annealing, silver or copper brazing, tool hardening, high speed steel hardening, scale free hardening, non-decarburizing heating or sintering powdered metals.

**Features** — A heavy, self-sealing type door inclined against the front plates of the furnaces makes tight contact to minimize heat and gas leakage. A smaller swing type door is provided with a sight hole for observation and for handling small pieces without exposing a large area of the furnace to the outside atmosphere. Under the charging door and the discharge door of the cooling section, there is a gas burner to provide a flame curtain which prevents air infiltration.

**Description** — These batch furnaces, substantially lined, insulated and re-enforced are of two types. (1) Those with carborundum or alloy muffles, and (2) those that are heated directly. Muffle furnaces may be gas or oil fired; direct heated furnaces may be gas or electric. Both types are supplied with means for introducing prepared atmospheres gas from separate generators or cylinders, or for producing, for certain operations, the desired atmosphere from controlled combustion of gas in the combustion chamber of the furnace. Picture at left shows electric furnace with chute and quench tank. This furnace may be

## THOMAS TRUCK of Keokuk



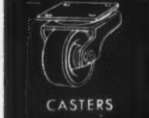
THOMAS MAKES



4 WHEEL TRUCKS



2 WHEEL TRUCKS



CASTERS



RUBBER WHEELS

### Safety One Man

## BARREL TRUCK

- Trucker never touches barrel
- Automatic loading and unloading
- Sliding two-in-one chime hook
- Safe — no backstrain
- Balanced — truck carries load
- Easy rolling — Hyatt bearings
- Lifetime use — welded steel

### A Cinch for One Man

Safer, faster, easier way for one to handle barrels, drums, kegs up to 1000 lbs. Chime hook engages rim and cast steel prongs slide under drum instant trucker pulls truck back. That's all there is to it! Rubber tired wheels. Available now.

Send for Complete Literature

THOMAS TRUCK & CASTER CO.

1600 MISSISSIPPI RIVER, KEOKUK, IOWA

When Inquiring specify CP A2348 — see information request blank, pgs. 2-3

## A New Method for Keeping Water and Oil out of COMPRESSED AIR LINES

● Compressed air cooled to lower temperatures takes out the "grief" of freezing air lines, water hammer, rapid wearing out of pneumatic tools or equipment, damage to sprayed coatings, and spoilage of products in which compressed air is used in process.

NIAGARA AERO AFTER-COOLER produces compressed air with one-half the moisture permitted by ordinary methods and provides controlled uniform air temperatures. Also, it controls jacket-water temperature and prevents the washing of oil out of the compressor cylinder, damaging the compressor and fouling the air lines.

It accomplishes these results with great savings of cooling water cost. For complete information, address:

### NIAGARA BLOWER COMPANY

25 Years of Service in Air Engineering

New York Address:

Dept. CP-75, 6 E. 45th St., New York 17, N. Y.

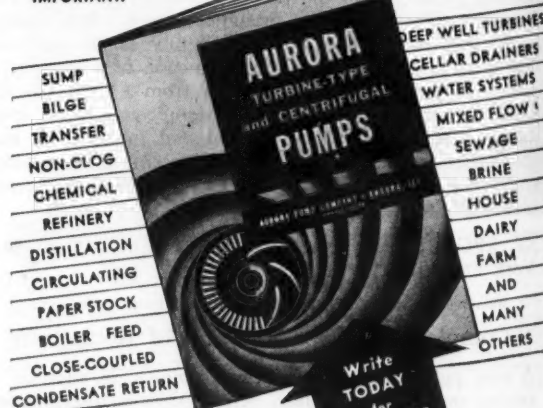
Field Engineering Offices in Principal Cities

When Inquiring specify CP A2349 — see information request blank, pgs. 2-3

## PUMPS YOU CAN TRUST

If you are a user of pumps FOR ANY PURPOSE you will welcome acquaintance with the modern, efficient and lasting "PUMPS by AURORA." Built to highest standards in the belief that EVERY pumping job is IMPORTANT.

BUILT  
by  
EXCLUSIVE  
PUMP  
MAKERS



Write TODAY for CONDENSED CATALOG

See Our Catalog in SWEETS

DISTRIBUTORS IN PRINCIPAL CITIES

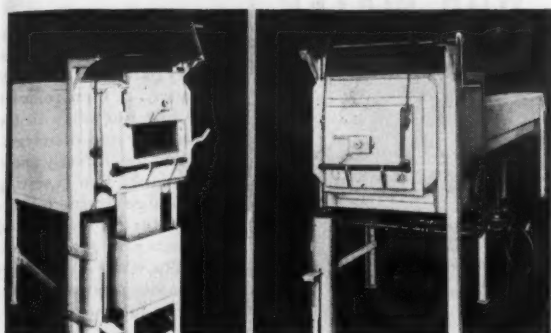
**AURORA**  
PUMP COMPANY

62 Loucks St., AURORA, ILLINOIS

When Inquiring specify CP A2350 — see information request blank, pgs. 2-3



## PRODUCTION



### OVEN TYPE PROTECTIVE ATMOSPHERE FURNACES

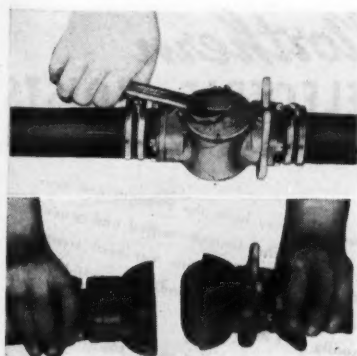
gas or oil fired, direct heated or equipped with muffles. One at right is a gas-fired muffle furnace with water cooled cooling chamber. Furnaces with or without discharge chute are built with hearth areas of 8" x 12", 12" x 16", and 16" x 24". Furnaces with cooling chambers are built in five sizes from 8" x 14" to 27" x 36" hearths.

W. S. ROCKWELL CO., Dept. CP, 50 Church St., New York 7, N. Y.

When inquiring specify CP A2351 — see information request blank, pgs. 2-3

## Quick Disconnect Coupling for Non-Leak Hose-Pipe Line Service

*Seals lines against leakage; one quarter turn of wrench lugs break connections*



**Uses** — For rapid connection and disconnection of lines transmitting water, hot oil, gasoline, hydraulic fluid, lubricating oil, isopropyl alcohol, ethylene glycol, kerosene, and air, propane, butane carbon dioxide and other gases.

**Features** — Operates instantly; seals lines against

Top view — wrench in position — below coupling open after 1/4 turn of wrench

leakage; adaptable to any type of hose or pipe line; a 90 degree turn of the cylinders connects or disconnects and seals both ends of the line. If desired either half can be opened to allow drainage of the disconnected lines.

**Description** — This disconnect coupling is a plug type valve or cock with the plug so designed as to permit easy disconnection and connection; two synthetic rubber seals held against halves of the split plug by springs prevent leakage in both flow and disconnect positions. (Mounting flanges provided if desired.) One quarter turn of wrench lugs is only movement necessary in breaking connections. Detailed information, including maximum pressures and temperatures, on request.

THOMPSON PRODUCTS, INC., Dept. CP, 2196 Clarkwood Rd., Cleveland 3, Ohio.

When inquiring specify CP A2352 — see information request blank, pgs. 2-3



## IDEAS that saved time along with materials

### EXTRACTION AT&M Centrifugals Float an Oil

There are many methods of separating materials — but centrifuging offers the advantage of doing work faster, in smaller space. Experience with a wide variety of applications helps AT&M engineers to locate the best means of utilizing the tremendous separating action of centrifugal force.

A fruit drink manufacturer thought he could separate oil from the rind of a tropical fruit faster by centrifuging. Problem was to separate the oil from waste pulp liquor inside the imperforate basket. Solution: adding water during the latter part of the cycle displaces the lighter-weight oil over the edge of the basket where it is caught in a trough.

### IMPREGNATION AT&M Centrifugals Handle an Untouchable

Usually, a standard AT&M can be selected to do the job. When necessary, AT&M engineers will create a special design to meet special requirements.

A medical supplies manufacturer had the problem of impregnating flannel under conditions of extreme sterility. AT&M engineers built a special centrifugal, using an alloy that is easy to clean and resistant to corrosion and clinging dirt. A perforated metal sheet above the basket permits impregnating the flannel without touching it, and a tight-sealing lid shuts out all foreign matter. A tedious process was speeded up, with complete safety.

Consider Centrifuging for  
extraction . . . filtration . . . dehydration . . . precipitation  
. . . impregnation . . . coating. See AT&M's 8-page catalog  
in CHEMICAL ENGINEERING CATALOG.

Consider AT&M for  
capable engineering service (as war needs permit) — no  
charge for study and recommendation. Centrifugals and  
baskets in all machinable metals and coatings. Strict confidence preserved. AMERICAN TOOL & MACHINE  
COMPANY, 1425 Hyde Park Ave., Boston 36, Mass.,  
30D Church Street, New York 7, N. Y.

SAVE TIME, SPACE AND COSTS WITH

**A.T. and M.**  
**CENTRIFUGING**

When inquiring specify CP A2353 . . . see information request blank, pgs. 2-3

# More Service...

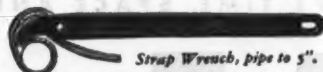
# Less Upkeep



when you  
use the  
**Guaranteed  
RIDGID**

## Heavy-Duty Pipe Wrench

● It looks different—but the real difference is in its performance. The housing simply won't break or warp—no bother or expense of repairs. Full-floating hookjaw (with handy pipe scale) and replaceable heeljaw take hold instantly, won't lock on pipe. Adjusting nut in open housing spins to pipe size. Powerful comfort-grip I-beam handle eases hard pulls. Ask your Supply House for the rugged work-saver **RIDGID**. We're manufacturing more of them than ever, but it's not enough—please be patient.



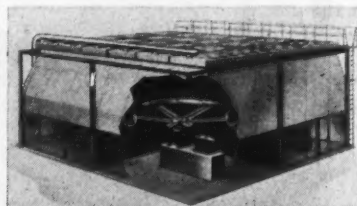
**RIDGID**  
WORK-SAVER PIPE TOOLS  
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP A2354 — see information request blank, pgs. 2-3

## PRODUCTION

### Cooling Units Utilize Fin Tubes, Ground Level Forced Draft Fans

*Variable pitch fan blades; variable speed drives,  
units available to meet specific requirements*



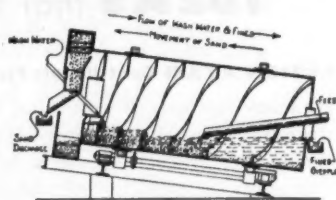
FOUR CELL COOLING UNIT

cooler, cooling Glycol Amine, Carbon Dioxide, and Hydrogen Sulphide.

**Features** — Variable fan pitch blades can be set back for many months to save hp. Can be designed for pressures up to 5000 psi. Easy accessibility for maintenance. All mechanical equipment is near ground within reach of maintenance men. Sufficient static head for pump suction, an important consideration in placing condensate pumps. Cooling sections placed to take advantage of evaporative effect of any moisture deposited on them. Multi-fan cells assure uninterrupted operation in case of failure of one fan.

**Description** — These cooling sections employ highly effi-

**Uses** — Typical installations of these cooling sections include: steam condenser in gasoline plant; jacket water cooler in compressor station of large utility; amine



## The Hardinge

Counter-Current

Classifier

For

Counter current washing  
to remove chemical solutions  
to remove finer sizes

also

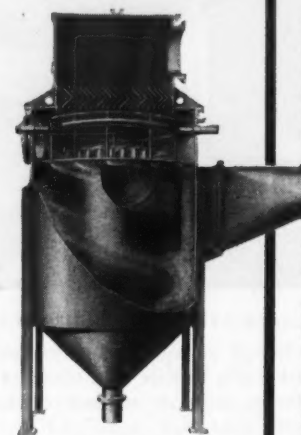
Classifying and sizing.

Write for Bulletin 39 A

**HARDINGE**  
COMPANY, INCORPORATED — YORK, PENNSYLVANIA  
NEW YORK, CHICAGO, SAN FRANCISCO, TORONTO

When inquiring specify CP A2355 — see information request blank, pgs. 2-3

## SUPPRESS DUST WITH WATER



Cutaway view showing Hydro-Clone system of blading and baffling.

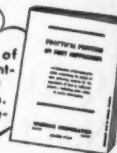
and reduce every particle to harmless sludge!

● **Whiting Hydro-Clone** — Type SH — precipitates heavy particles in the pre-cleaner... then removes the fine particles in the axial tube and disintegrator section directly above this tube. The resulting sludge drains to a dewatering tank, and water is recirculated. The water also removes obnoxious gases and dangerous fumes.

Hydro-Clone Equipment has no cloth screens or bags to clean, burn, or wear out... no spray nozzles to clog... no moving parts. Capacities from 2,000 to 30,000 cfm. Write for Bulletins FY-126 and FY-131 (low headroom type).

**WHITING**  
CORPORATION  
15667 Lathrop Ave.  
Harvey, Illinois

**FREE**  
New booklet of  
Practical Points  
on Dust  
Suppression.  
Ask for Bulletin  
FY-129.



When inquiring specify CP A2356 — see information request blank, pgs. 2-3

## Northern HI-LIFT ELECTRIC HOISTS 168-Hour Week Workers

They stay on the job because they have the strength and construction quality. One piece welded frames—turned and ground shafts—large size roller bearings—machine cut heat treated gearing—splash lubrication. All parts readily accessible for maintenance that usually isn't needed.

Hi-Lift feature makes better use of headroom—capacities 1000 lbs. to 15 tons.

Write for  
Literature



NORTHERN ENGINEERING WORKS, 260 Atwater St., Detroit, Mich.

**CRANES Northern HOISTS**

When inquiring specify CP A2357 — see information request blank, pgs. 2-3



## STOP CONDENSATION DRIP - PREVENT CORROSION



Try this  
tested  
plastic  
cork  
coating

INDUSTRIAL  
NoDrip

**A SURE CURE**—NoDrip, used and endorsed by leading industrial firms, forms a permanent, seamless jacket around pipes, tanks, vats, etc.; shuts out heat, cold, air, moisture; stops condensation dripping; prevents corrosion and rust. Acid, alkali and brine resistant. NoDrip protects and prolongs life of equipment, reduces costly maintenance and replacements. A trial in your plant will prove its merit. 1, 5 and 55 gal. drums. Order from your Supply House.

### EASY APPLICATION

Applied like plaster with brush, trowel or spray. Adheres to metal, cement, brick, wood.

NoDrip Handbook on Request

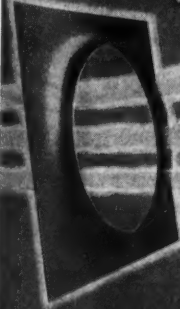
**J.W. MORTELL CO.**

Technical Coatings Since 1895

530 Burch St. Kankakee, Ill.

When inquiring specify CP A2358 — see information request blank, pgs. 2-3

## "COMMERCIAL" VENTURI TYPE FAN HOUSING



Twelve sizes now available  
... free from die charges.

Venture section and support plate are formed in one piece ... no folds or welds.

These sections are formed cold ... dimensions are uniform.

Write for folder giving full dimensions.

THE COMMERCIAL SHEARING AND STAMPING COMPANY  
YOUNGSTOWN 1, OHIO

When inquiring specify CP A2359 — see information request blank, pgs. 2-3

## PRODUCTION

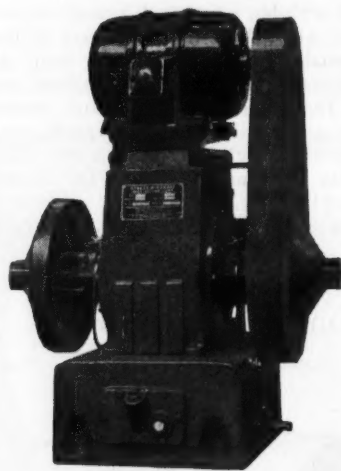
cient "K-fin" tube construction and these are cooled by forced draft fed by air from the cooler layer at ground level and supplied by fans with variable pitch blades and with variable speed drive. Vertical air flow against static head assures even air distribution over cooling surfaces. Fin fan units are designed for pressures up to 5000 psi and temperatures to 1500° F. Adaptability of this equipment is indicated in performance of cooling unit in a New Mexico plant designed to cool Glycol Amine, Carbon Dioxide and Hydrogen Sulphide from 208° F to 120° F using 100° F air as the coolant. An altitude of 8000 feet was taken into consideration in rating the performance of the four 12 foot diameter fans — each of which required 38 HP. (These units are the results of the combined skills of Griscom-Russell Co. and Fluor Corp., Ltd.) A bulletin giving detailed information is available on request.

THE FLUOR CORP., LTD., Dept. CP, 2500 South Atlantic Blvd., Los Angeles 22, Cal.

When inquiring specify CP A2360 — see information request blank, pgs. 2-3

## Oil-Sealed Rotary Vacuum Pump

*Produces and maintains vacuum as low as 5 microns, absolute pressure; rated at 100 cu. ft. displacement at 350 rpm*



Top mounted motor saves space

design eliminates dead space or clearance, permitting the discharge of air at the end of each stroke to be complete, — no re-expansion impairing pump efficiency. Top mounted motor saves space.

**Description** — The pump is rated at 100 cubic feet displacement at 350 rpm. The only valve, on the discharge side of the pump, is very sensitive to pressure differentials and made to discharge, without injury, sudden slugs of water or other liquids that may be sucked into the pump. The valve seat is of stainless steel, ground to an accurate surface, readily accessible and replaceable. The pump is direct motor driven with v-belt drive and motor mounted on adjustable hinged base. Complete details on No. 212 E "Microvac" pump on request.

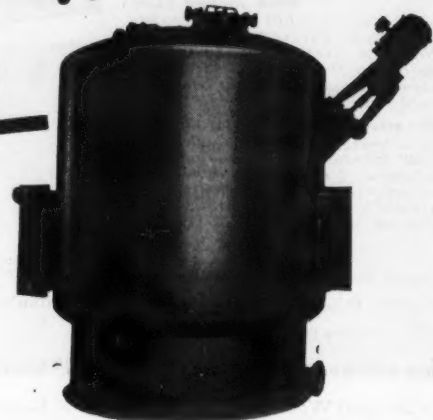
F. J. STOKES MACHINE CO., Dept. CP, Philadelphia 20, Pa.

When inquiring specify CP A2361 — see information request blank, pgs. 2-3

## PATTERSON-KELLEY

Heat Exchangers  
AND  
Process Equipment

An  
**UNUSUAL KETTLE**  
**WAS NEEDED...**  
**.... here it is!**



A prominent processing company asked our engineers to design a blending kettle which had to meet special structural and operating requirements.

Here is the kettle and here are a few of its special features:

- 1 . . . heat transfer requirements called for unusually high steam pressure; to withstand the pressure, jackets would have to be so thick that the weight would be undesirable; so
- 2 . . . coils involving much less metal were designed to handle the pressures to be used, thereby reducing total weight from 18,500 pounds to 6,500 pounds; and
- 3 . . . these coils were designed in two semi-circular units so that they could be withdrawn for cleaning and maintenance through side ports. Lack of head room prevented the use of customary circular coils
- 4 . . . lack of head room ruled out the customary stirrer location

Our engineers, who have designed many special types of kettles as well as a line of standard kettles to meet special processing problems, are well qualified by experience and knowledge to help you in the design of a kettle for your heating or blending problem.



THE PATTERSON-KELLEY

7-PK-2

Main Office and Factory

120 WARREN STREET, EAST STROUDSBURG, PA.

BOSTON 16, 96-A Huntington Avenue • NEW YORK 17, 101 Park Avenue  
PHILADELPHIA 3, 1700 Walnut Street • CHICAGO 4, Railway Exchange Building

Representatives in All Principal Cities

When inquiring specify CP A2362 — see information request blank, pgs. 2-3



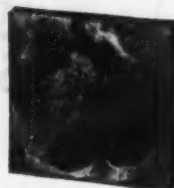
**"My high  
Rust I.Q.\*  
protects metal  
equipment!"**

\*Inhibitive Quality

**Steel Block Test  
proves Eagle  
Super "66" is  
rust-inhibitive!**

Here is how one steel block looked after being imbedded in a regular insulating cement during the test period. Note the extent of the rust. Such corrosion also occurs on iron and steel equipment whether heated or cold.

The other steel block looked like this after being imbedded in Eagle Super "66" for the same test period. Note absence of rust. This shows how effectively the rust-inhibitive qualities of Super "66" can protect your heated equipment.



As shown by Steel Block Test above, Eagle Super "66"... in addition to doing an unsurpassed job of insulating... actually inhibits rust!

#### High efficiency results from "Springy Ball" Structure

Eagle Mineral Wool, principal ingredient of Eagle Super "66", is made up of springy pellets containing countless dead air cells, providing highly efficient insulation. "Springy Ball" structure, created by these resilient pellets, is retained after the insulation dries, thus preserving its extremely low thermal conductivity.

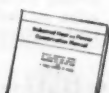


#### An easy-to-use, all purpose insulation

Eagle Super "66" does not break down or disintegrate. It gives exceptional protection, and is easily applied to almost any shape or size surface. It withstands a full range of temperatures to 1800° F., and if not used at temperatures above 1200° F., can be removed, remixed and reused! Dry coverage is unusually high... cost per sq. ft. is less than most insulating cements and blocks.

To guard Eagle Super "66" from outside damage, we recommend Eagle INSULSEAL... a tough, weather-proof coating that resists scuffs and bumps.

**FREE Manual** Gives case examples of how industrial insulation effects large fuel savings. Includes Heat Loss Estimate Sheet for your use. Write for copy. Finish the war faster—keep on buying War Bonds!



### EAGLE-PICHER INSULATIONS

High and Low Temperature

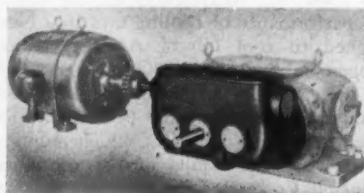
Made by THE EAGLE-PICHER COMPANY, Cincinnati (1), Ohio  
Eagle Super "66" Insulating Cement • Eagle L-7 and M-2 Felt • Eagle Supertemp Block • Eagle Blankets • Eagle Pipe Covering • Eagle Insulseal • Eagle Loose Wool Eagle Insulitic • Eagle Swatchak • Eagle Drycoat



When inquiring specify CP A2363 — see information request blank, pgs. 2-3

## PRODUCTION

**Variable Speed Drive; Constant  
Torque Throughout Entire Range**  
*Designed for applications not covered by other  
mechanical or electrical devices*



**Uses** — Using an 1800 RPM squirrel cage motor as a source of power, output speed can be obtained from 0-800 RPM in one direction or from 400 RPM forward

#### DIFFERENTIAL SPEED DRIVE

through 0 to 400 RPM reverse.

**Features** — A distinctive feature of this unit is that the torque remains constant throughout the entire range.

**Description** — The unit illustrated is designated as No. T3. It is made by utilizing Link Belt PIV No. 3 and two mechanical differentials. Torque capacity of this unit is 750 inch pounds throughout the entire range. Other units of the line may be supplied to provide up to 2100 inch pounds torque throughout the same speed ranges. Smaller units are also available. By means of a control box furnished with the unit, the output shaft can be made to duplicate any movement of the control shaft. The control shaft may be operated with but a few inch pounds torque while the output shaft will deliver the full power of the unit. In the differentials, the bevel gears are made of alloy steel, case-hardened and mounted throughout on anti-friction bearings. The worms are hardened and ground and the worm gears are made from high grade gear bronze. These are low ratio, high helix angle worm gears. Many variations of the basic unit, designed for specific applications may be applied.

OHIO GEAR CO., Dept. CP, 1314 East 179th St., Cleveland, Ohio.

When inquiring specify CP A2364 — see information request blank, pgs. 2-3

### Heavy-Duty Safety Glove

*Made of chrome tanned cowhide; one piece back construction; minimum number of seams*



#### WELDING GLOVE

To give added strength and protection, all vulnerable seams are welded. Complete information is available on request.

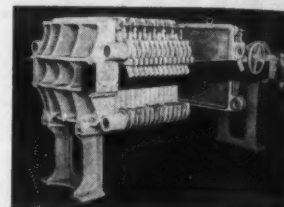
AMERICAN OPTICAL CO., Dept. CP, Southbridge, Mass.

**Uses** — This glove has been especially designed for workers engaged in welding and may be used for a variety of other heavy-duty operations.

**Features** — Principal feature is its one piece back construction. There are no seams on back of glove to catch sparks or molten metal.

**Description** — The method of manufacture employed reduces the number of seams to a minimum.

**BETTER FILTRATION**  
**for Any Corrosive Condition  
at Any Temperature and Pressure**



*Shriver side feed, closed delivery, washing type filter press with visible discharge; plates and frames of stainless steel.*

Whether you want to filter a pint or 200 gallons per minute, the Shriver Filter Press supplies everything you're looking for in operating efficiency, speed and ease, regardless of the nature of your product and the necessary temperature, pressure or other factors required to clarify, thicken the slurry, recover the solids, or wash, extract or dry them.

No filtering equipment offers as much performance versatility and economy in more processing fields.

Shriver Filter Presses are made for any filtering capacity — of any metal, rubber, wood or plastics — in stationary or portable units.

Write for new Catalog No. 45 to T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.

**Shriver** FOR BETTER FILTRATION  
**FILTER PRESSES**

When inquiring specify CP A2366 — see information request blank, pgs. 2-3

**WIPE OUT  
"hidden  
costs"  
IN STORAGE**



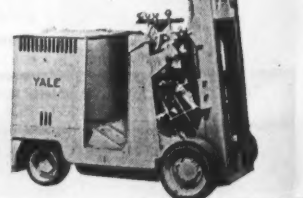
Yale Electric High-Lift Fork Trucks are compact, and can "turn on a dime." This means that storage space can be planned with narrower aisles and more complete use of valuable floor area. The forks can be elevated to high levels enabling you to stack goods to the ceiling.

These modern materials handling tools are safe, speedy, economical—handle all types of products from receiving through to final shipment. Workers can move and tier more with less effort.

There's a Yale Electric Industrial Truck to help you cut materials handling costs. Ask for full information—or write for booklet.



THE YALE & TOWNE  
MANUFACTURING CO.  
4330 Tecony Street  
Philadelphia 24, Pa.



When inquiring specify CP A2367 — see information request blank, pgs. 2-3



Where Lighting Units are Subject to Severe Mechanical Strains, Smoke, Vapor or Dust

## Specify BENJAMIN "STEELITE"

Armor Clad Lighting Units

Listed as Vapor-Tight by Underwriters' Laboratories

Specially designed for lighting of Steel Mills, Foundries, Forge Shops and other Mills, for either high or regular mounting heights, and for illumination levels ranging from 5 to 100 foot candles or more.



- 1 HOUSING, heavy gauge porcelain enamel steel, specially finished to resist corrosive atmospheres.
- 2 REFLECTOR, multi-conical Alzak Aluminum.
- 3 COVER, Heat and Impact Resisting Tempered Plate Glass, Dust and Vapor Tight.
- 4 HINGED cover, Easily Serviced.

WRITE FOR DATA BULLETIN describing the three types: Concentrating, Medium Spread and Wide Spread units; available in 2 sizes: 750-1500 Watt Incandescent and 400 Watt Mercury Lamps. BENJAMIN ELECTRIC MFG. CO., DEPT. LL DES PLAINES, ILLINOIS

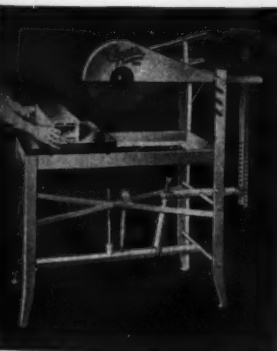
### BENJAMIN

Lighting Equipment

Distributed Exclusively Through Electrical Wholesalers

When inquiring specify CP A2368 — see information request blank, pgs. 2-3

1170



### Special Sizes and Shapes . .

..... of firebrick made accurately and quickly right on the job, assuring tighter joints and longer lasting walls and arches in furnaces, boilers and acid chambers. Low Cost cutting of all Refractories and Masonry Materials, regardless of hardness.

**Clipper Manufacturing Company**

4034 MANCHESTER AVE.  
ST. LOUIS 10, MISSOURI

**FREE TRIAL**

INFORMATION ON REQUEST



**CUT IN  
5 SECONDS  
BY CLIPPER**



**CUT IN  
9 SECONDS  
BY CLIPPER**



**CUT IN  
12 SECONDS  
BY CLIPPER**

When inquiring specify CP A2369 — see information request blank, pgs. 2-3

## PRODUCTION

### One Ton Industrial Fire Truck

Gasoline powered unit easily maneuvered down narrow aisles; storage tank provides for instant operation



FIRETRUCK, simple steering, dual rear wheels

Uses — To provide faster, greater capacity equipment for emergency use in combatting industrial fires.

Features — This mobile unit maneuvers down narrow aisles and in areas where

clearances are close. It carries water tank which provides for instant operation while 1½ inch hose is being connected to hydrant. One simple hand steering control.

Description — The truck is the maker's gasoline powered model FF "Chore Boy" — one ton capacity, 79 inch wheelbase, dual rear wheels. Speed up to 15 miles per hr. Deck space 20 sq. ft. The truck's water supply tank is furnished with 200 feet of hose and delivers 120 gals. of water per minute. Nozzle — combination — fog or straight steam.

THE BUDA CO., Dept. CP, Harvey, Ill.

When inquiring specify CP A2370 — see information request blank, pgs. 2-3



### STRUTHERS WELLS New Kneading Machines

Extra large capacities now available.  
For mixing heavy and viscous materials.  
Made of steel, stainless steel and other metals.  
Standard sizes from ½ gallon to 4000 gallons.  
Special machines designed for unusual jobs.

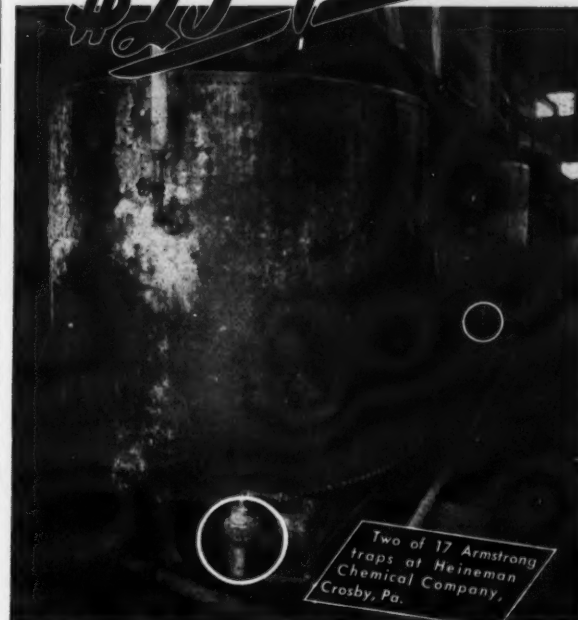
Write for Bulletin No. 51



**STRUTHERS WELLS Corporation**  
TITUSVILLE, PENNSYLVANIA  
PLANTS AT WARREN, PA. and TITUSVILLE, PA.  
Offices from Coast to Coast

When inquiring specify CP A2371 — see information request blank, pgs. 2-3

## Steam Traps Save Chemical Plant \$25.00 per day



Two of 17 Armstrong traps at Heineman Chemical Company, Crosby, Pa.

• After installing Armstrong Steam Traps, the Heineman Chemical Company, Crosby, Pa., burned only 10,880,000 cu. ft. of gas to produce the same amount of steam formerly produced by 14,350,000 cu. ft. — a saving of \$25 a day.

There is no mystery to accomplishments of this sort. Comparable savings are being made in plants all over the country by installing Armstrong traps. Condensate and air are discharged as rapidly as they accumulate, without steam leakage. Ordinary sludge and dirt do not interfere with trap operation. The patented free-floating valve and other design refinements insure freedom from wire drawing in the valve orifice, permitting tight closure and long life with a minimum of servicing.

Catalog H contains valuable data, information, graphs, charts, etc., on steam trap selection, installation, operation and maintenance. Send for your copy today.

**ARMSTRONG MACHINE WORKS**  
880 Maple Street • Three Rivers, Michigan



**Armstrong**  
STEAM TRAPS • AIR TRAPS • PURGERS • HUMIDIFIERS

When inquiring specify CP A2372 — see information request blank, pgs. 2-3

**D.O. James**  
ESTABLISHED 1888

## GEARS FOR INDUSTRY



D.O. James gears are products of an organization with over 57 years of gear manufacturing experience. Our extensive gear cutting facilities enable us to have a large capacity for making gears, of various types, for industry's many requirements.

We make the following types of gears:

Continuous-tooth Herringbone Gears—From 1" to 60" in diam. and up to 18" face  
Worm Gears—From 1" to 100" in diameter  
Helical Gears—From 1" to 60" in diameter  
Spur Gears—From ¼" to 150" in diameter  
Spiral Bevel Gears—From 1" to 30" in diam.  
Bevel Gears—From 1" to 60" in diameter  
Racks—Cut in any required length.

Over a half-million square feet of floor space are devoted exclusively to gear manufacturing and contain the utmost in modern gear cutting equipment.

**D.O. JAMES**  
MANUFACTURING CO.  
1140 W. MONROE STREET  
CHICAGO, ILL.

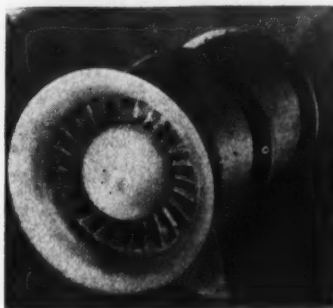
MAKERS OF EVERY TYPE OF GEAR AND GEAR REDUCER

When inquiring specify CP A2373 — see information request blank, pgs. 2-3

## PRODUCTION

### High Capacity, Compact Blowers

Unusually light weight; noise level very low



14" Blower — 8000 cfm.

Uses — In heating, ventilating, air conditioning, etc. requiring pressures up to 6 inches of water; dust removal, conveying, processing, drying and forced draft blowers requiring 10 inches to 100 inches of water; coke ovens, blast furnaces and processing requiring 3 to 100 psi.

Features — Exceptional flow characteristics with maintenance of high efficiencies.

High capacities and relatively small size embodying use of specially developed with high HP and small diameters with resultant great savings in weight running to 60% of conventional units.

Description — Illustrated is 14 inch diameter blower, delivering 8000 cfm and 10 inch S. P., turning 3450 rpm. It is driven by an 8 inch diameter, 20 HP motor and the complete unit weighs only 130 pounds. Noise level is extremely low as comparable pressures and speeds are obtained at approximately one half the conventional design speeds. The line will make available a range of direct driven units with air pressures from ⅓ inch to 100 inch of



**Only One  
Operator**

**to weigh,  
fill, seal  
and case  
3000  
packages  
per day!**

Here indeed is speed, economy and labor saving packaging. The production of this combination model SR Economy Packager and model SB Power Feed Weigher is 6 to 10 filled and sealed cartons per minute, with only one operator. Gluing of cartons is semi-automatic — weighing and filling automatic. Collector table accumulates supply of finished cartons. The sealer handles all sizes of cartons — the weigher or filler is furnished to suit requirements. This Triangle combination is your best bet for speed, flexibility, tight-sealing, low labor costs, trouble-free operation. Write for full details.



**TRIANGLE PACKAGE MACHINERY CO.**  
917 NO. SPaulding Avenue, CHICAGO

WRITE FOR 20 PAGE  
BROCHURE

OFFICES IN PRINCIPAL CITIES, UNITED STATES AND CANADA

When inquiring specify CP A2374 — see information request blank, pgs. 2-3

## DURIMET "20"

a NEW and SUPERIOR  
austenitic stainless steel  
for handling sulphuric acid



Most of the high alloy Cr-Ni-Mo austenitic steels have very high rates of corrosion in acid strengths around 78% (60° Be.). Corrosion is also accentuated by aeration and agitation.

DURIMET "20" is less affected by sulphuric acid at these critical strengths and temperatures than any other commercially available, machinable Cr-Ni-Mo austenitic steel.

Investigate Durimet 20 for its excellent corrosion resistance, not only in sulphuric acid, but also in other corrosives.



Available in castings and engineered equipment . . . pumps, valves, tank outlets, agitators, etc.

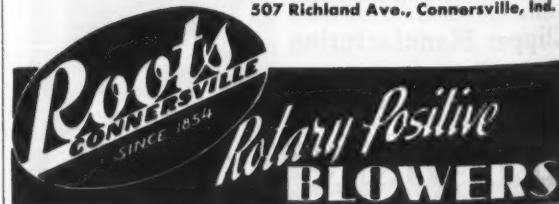
**THE DURIRON COMPANY, Inc.**  
DAYTON 1, OHIO, U. S. A.

When inquiring specify CP A2375 — see information request blank, pgs. 2-3



Bulletin 22-23-B-11 gives detailed information on the Rotary Positive Displacement principle and its advantages. Characteristic curves are shown for different drives, together with sizes, dimensions, complete specifications, and applications. Write for your copy of Bulletin 22-23-B-11. Also ask for Bulletin 21-B-35 covering smaller sizes.

**ROOTS-CONNORSVILLE BLOWER CORP.**  
One of the Dresser Industries  
507 Richland Ave., Connorsville, Ind.



When inquiring specify CP A2376 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## PRODUCTION

water at synchronous motor speeds. Also direct connected turbine driven units up to 100 psi, and 100,000 cfm will be available. They are designed so that they can be installed in accordance with the requirements of conventional systems, either floor, ceiling or wall mountings or suspended in the duct.

BUFFALO TURBINE CORP., Dept. CP, 2165 Bailey Ave., Buffalo 11, N. Y.

When inquiring specify CP A2377 — see information request blank, pgs. 2-3

## Serpentine Plates Defrost Easily; Equivalent of 100% Prime Surface

*Embossed from heavy gauge cold-rolled steel*

**Uses** — Lockers plants, sharp freeze, milk coolers, ice cream hardening and in various other applications. These plates are fabricated into complete cabinet, liners and shelves.

**Features** — Easily defrosted with stiff brush. Fabricated



PLATE UNIT

with all refrigerant joints eliminated and without interruption to the Serpentine principle of refrigerant flow. Depth and contour of embossing provides the equivalent of 100 per cent of prime surface. Less plate area is required.

**Description** — Originally used by makers in producing liners for industrial sub-zero machines. Made in semi-serpentine style (one side embossed, other side flat) or in full design (both sides embossed) the refrigerant circulates through all tubes and prevents oil logging. Serpentine construction eliminates the necessity for internal tubing. Area of the pass on semi-serpentine design is  $\frac{5}{8}$  in. round tube and suitable for all normal loads and capacities; full design is equal to  $\frac{7}{8}$  in. round tube. Plates embossed from heavy gauge cold-rolled steel. Finished in gray Infratex enamel, baked-on. Zinc finish at slight extra cost, stainless steel on special order. Liner illustrated is now in wide use for hardening and storage of ice cream for armed forces. Literature illustrates various plates and gives specifications. Bulletin SP 442.

KOLD HOLD MFG. CO., Dept. FP, 424 N. Grand Ave., Lansing, Mich.

When inquiring specify CP A2378 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



It Takes a **TOUGH** Scale  
to Do a Tough Job!

● Powdered abrasives floating around are mighty hard on any machine. Yet a Fairbanks-Morse Scale gives perfectly satisfactory service under just such conditions.

At The Perfect Circle Company this scale has been doing a tough, dirty job year after year — and still goes on. It is obvious that the quality of a piston ring must be precisely controlled. That control must start at the foundry. Here a Fairbanks-Morse Scale accurately weighs the ingredients of each charge for the cupola. The reason it gives such dependable service is that Fairbanks-Morse Scales are designed specifically to do every job, usual or unusual, with the greatest possible efficiency.

Over 115 years ago Thaddeus Fairbanks estab-

lished principles still used in modern scales. And since he began working to improve weighing, we've never stopped.

### A Few Other Jobs

#### Fairbanks-Morse Scales Can Do for You

Count large or small parts	Print weight on shipping records
Weigh and record moving materials	Automatically control weight of aggregates
Guard formulas in compounding	Weigh from fractions of ounces to railroad cars
Weigh cars while in motion	Determine center of gravity of airplanes

For further information write Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

BUY MORE WAR BONDS

# Fairbanks-Morse



*A name worth remembering*

Diesel Locomotives • Diesel Engines • Generators • Motors • Pumps • Scales  
Magnets • Stokers • Railroad Motor Cars and Standpipes • Farm Equipment

When inquiring specify CP A2379 . . . see information request blank, pgs. 2-3

**D.O. James**  
ESTABLISHED 1886

## GEARS FOR INDUSTRY



D.O. James gears are products of an organization with over 57 years of gear manufacturing experience. Our extensive gear cutting facilities enable us to have a large capacity for making gears, of various types, for industry's many requirements.

We make the following types of gears:

Continuous-tooth Herringbone Gears—From 1" to 60" in diam. and up to 18" face  
Worm Gears—From 1" to 100" in diameter  
Helical Gears—From 1" to 60" in diameter  
Spur Gears—From 3/4" to 150" in diameter  
Spiral Bevel Gears—From 1" to 30" in diam.  
Bevel Gears—From 1" to 60" in diameter  
Racks—Cut in any required length.

Over a half-million square feet of floor space are devoted exclusively to gear manufacturing and contain the utmost in modern gear cutting equipment.

**D.O. JAMES**  
MANUFACTURING CO.  
1140 W. MONROE STREET  
CHICAGO, ILL.

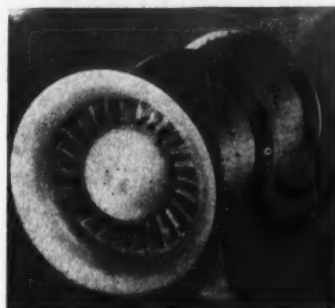
MAKERS OF EVERY TYPE OF GEAR AND GEAR REDUCER

When Inquiring specify CP A2373 — see information request blank, pgs. 2-3

## PRODUCTION

### High Capacity, Compact Blowers

*Unusually light weight; noise level very low*



14" Blower — 8000 cfm.

**Uses** — In heating, ventilating, air conditioning, etc. requiring pressures up to 6 inches of water; dust removal, conveying, processing, drying and forced draft blowers requiring 10 inches to 100 inches of water; coke ovens, blast furnaces and processing requiring 3 to 100 psi.

**Features** — Exceptional flow characteristics with maintenance

of high efficiencies. High capacities and relatively small size embodying use of specially developed with high HP and small diameters with resultant great savings in weight running to 60% of conventional units.

**Description** — Illustrated is 14 inch diameter blower, delivering 8000 cfm and 10 inch S. P., turning 3450 rpm. It is driven by an 8 inch diameter, 20 HP motor and the complete unit weighs only 130 pounds. Noise level is extremely low as comparable pressures and speeds are obtained at approximately one half the conventional design speeds. The line will make available a range of direct driven units with air pressures from 3/8 inch to 100 inch of



*Only One  
Operator*

**to weigh,  
fill, seal  
and case  
3000  
packages  
per day!**

Here indeed is speed, economy and labor saving packaging. The production of this combination model SR Economy Packager and model SB Power Feed Weigher is 6 to 10 filled and sealed cartons per minute, with only one operator. Gluing of cartons is semi-automatic — weighing and filling automatic. Collector table accumulates supply of finished cartons. The sealer handles all sizes of cartons — the weigher or filler is furnished to suit requirements. This Triangle combination is your best bet for speed, flexibility, tight-sealing, low labor costs, trouble-free operation. Write for full details.



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917 NO. SPAULDING AVENUE, CHICAGO

WRITE FOR 20 PAGE  
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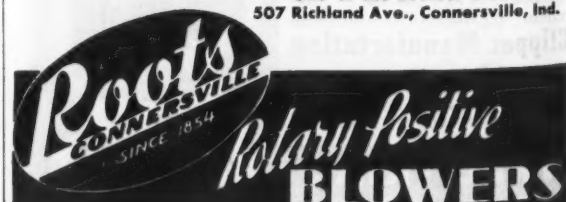
**THE DURIRON COMPANY, Inc.**  
DAYTON 1, OHIO, U. S. A.

When Inquiring specify CP A2375 — see information request blank, pgs. 2-3



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**ROOTS-CONNSVILLE BLOWER CORP.**  
One of the Dresser Industries  
507 Richland Ave., Connersville, Ind.



When Inquiring specify CP A2376 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## PRODUCTION

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### A Few Other Jobs Fairbanks-Morse Scales Can Do for You

Count large or small parts	Print weight on shipping records
Weigh and record moving materials	Automatically control weight of aggregates
Guard formulas in compounding	Weigh from fractions of ounces to railroad cars
Weigh cars while in motion	Determine center of gravity of airplanes

For further information write Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

BUY MORE WAR BONDS

# Fairbanks-Morse



Diesel Locomotives • Diesel Engines • Generators • Motors • Pumps • Scales  
Magnets • Stokers • Railroad Motor Cars and Standpipes • Farm Equipment

*A name worth remembering*

When inquiring specify CP A2379 . . . see information request blank, pgs. 2-3

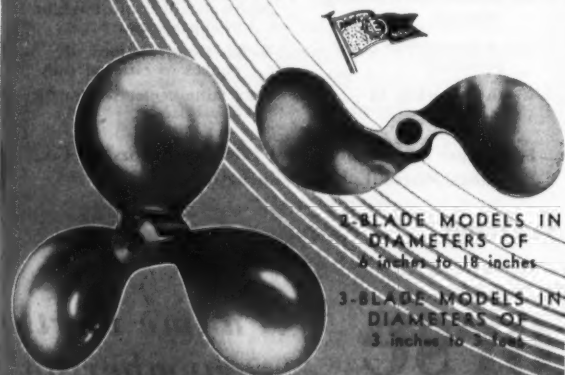
*Smooth*  
**VIBRATIONLESS**

# MICHIGAN MACHINED-PITCH PROPELLERS

## For MIXING or AGITATION

Available in a wide range of sizes, models and metals to ideally suit practically every requirement . . . whether for original equipment replacement or special application. Made by our exclusive "Machined-Pitch" method which means that they are absolutely accurate as to pitch, balance and blade spacing. This assures less "whip" on the shaft and less wear on connecting couplings and motors. **FREE CONSULTIVE ENGINEERING SERVICE.**

Write for complete details and prices NOW!



**MICHIGAN WHEEL CO.**

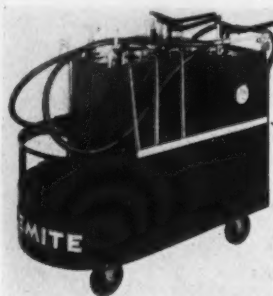
232 Market Ave., S. W., Grand Rapids 3, Mich.

When Inquiring specify CP A2380 — see information request blank, pgs. 2-3

## PRODUCTION

### Complete Portable Lubricating Unit for One Man Operation

Equipped to fill oil reservoirs in machines  
or hydraulic systems; gear housings;  
also to load hand guns



"Lubrikart" easily moves between rows of machines

through rows of machines or wherever space is limited. Cart is 21", 31" long and 37 1/2" high.

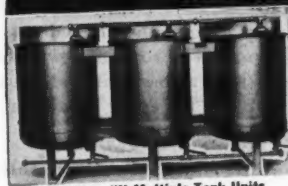
**Description** — Two models are available. The basic model carries two seven gallon tanks equipped with low pressure pumps with five and a half foot hose and non-drip nozzles for filling oil reservoirs on machines and hydraulic systems, and for filling gear housings; one seven gallon tank with high pressure tank for loading handguns; two one and

**Uses** — To provide a complete, compact portable lubrication department for industrial plants, dispensing a variety of grades or types of lubricants.

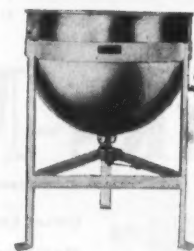
**Features** — Compact, streamlined designed and mounted on five inch ball bearing casters. By means of perambulator-style handles it is easily moved to any point where it is required and responds quickly in being guided

# LEE

HEADQUARTERS FOR  
*Dependable*  
CORROSION-RESISTANT  
*Equipment*  
for the Processing Industry



Lee "Nocoil" Multiple Tank Units



Lee Two-Thirds Jacketed Heavy Duty Kettles

...An organization of skilled engineers and master craftsmen—utilizing advanced methods of fabricating Stainless Steel. Pure Nickel, Monel and newly developed corrosion-resistant alloys.

Whatever your needs—in the fields of processing, cooking, canning or storage of food, drug or chemical products—call on LEE for economical reliability. We will aid you to qualify for new equipment under present easier priorities.

**LEE METAL PRODUCTS CO.**  
INCORPORATED

418 Pine Street Phillipsburg, Pa.

When Inquiring specify CP A2381 — see information request blank, pgs. 2-3

## HERE'S WHY *Airetool* TUBE CLEANERS & EXPANDERS SAVE TIME—SAVE TUBES—SAVE MONEY

NEW FORM  
CUTTERS



POWERFUL  
MOTOR

Will not track and damage tubes when properly used. Removes severest incrustations quickly, efficiently and thoroughly. Made of special heat treated alloy steel for long life, in sizes for tubes 1/2" to 24" I.D.; straight or curved.

Develops up to 28% greater power. Can be loaded down to 50 rpm without stalling. Picks up immediately when load is released. Constant torque at low speeds. Slip fit construction for easy maintenance. Air, steam or water driven.

**PRECISION MADE** long lasting Tube Expanders are made by Airetool in a variety of sizes to meet every tube rolling and expansion problem. **HELPFUL BULLETINS**, explaining Airetool products, their use and selection, are free.

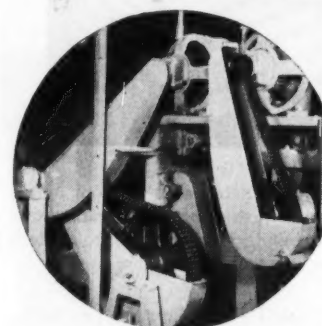
**500 Airetool & Yost-Superior Factory Bldgs.**  
**SPRINGFIELD**

OHIO

**AIRETOOL MANUFACTURING COMPANY**

When Inquiring specify CP A2382 — see information request blank, pgs. 2-3

## MORE PRODUCTION AT LOWER COST



**2000  
Horsepower  
or  
Fractional H.P.  
●  
98-99%  
Efficient**

Smooth, quiet Diamond Multi-Strand Drive from 500 h.p. Diesel engine to electric generator, installed in pipe line station.

Whether transmitting a fraction of a horsepower, two or three, — or a thousand or more, Diamond Roller Chain Drives provide the same smooth and enduring performance. All Diamond Roller Chains are alike in basic "roller bearing" principle, — the retained high efficiency and long-life durability being the result of their uniformity, precision, and high quality. Load is distributed by them among many teeth and there is no excess loading exerted on machine bearings as caused by the separating force of gears, or the tension of belts.

**Plan Improvements Now** — Investigate the many advantages of high strength, high efficiency Diamond Roller Chain Drives now. Practical recommendations are yours for the asking. . . **DIAMOND CHAIN & MFG. CO.**, 411 Kentucky Ave., Indianapolis 7, Ind.

**DIAMOND ROLLER CHAINS**

When Inquiring specify CP A2383 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## PRODUCTION

three quarter gallon tanks with oil transfer pumps for filling oil cans; six spout type oil cans, and four lever type handguns. There is also space for waste, replacement fittings, small tools or other material. The second model has in addition, a high pressure hand-operated grease pump which holds 30 pounds of lubricant and is equipped with a five and one half foot lubricant hose fitted with a hydraulic coupler. This pump develops up to 7000 pounds of pressure per square inch, and can be lifted clear of the Lubricant and carried to point of use, if desired. All pumps, loaders and transfers are manually operated.

ALEMITE DIV. (Stewart-Warner Corp.), Dept. CP, 1800 Diversey Parkway, Chicago, Ill.

When inquiring specify CP A2384 — see information request blank, pgs. 2-3

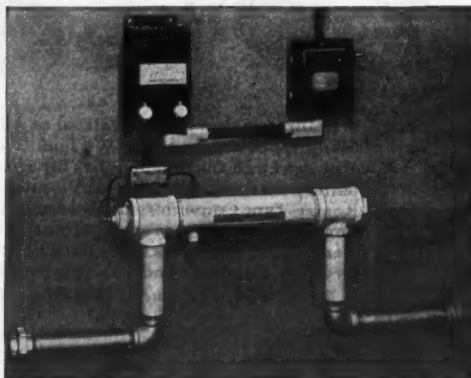
## Electric Water Conditioner

*Designed to provide complete conditioning with one simple assembly without any other treatment*

**Uses** — For providing a purified water supply for boilers, condensers, cooling systems, tanks, sprays, compressors, trip hammers, pickling vats.

**Features** — The conditioner is of sturdy, simple construction and involves no moving parts. Designed to effect reduction and prevention of scale formation, as well as foaming, priming and bumping, pitting, embrittlement and cracking. Being entirely electrical, no regenerating or backwashing is required. Prevents boiler hazard by permitting boiler to heat uniformly. Retains productive elements of water, — the lime, calcium and magnesium. Contributes to bringing out and retaining delicate flavors of fruits, syrups, concentrates and extract flavorings; also aids in better carbonation. Aids in delivering cleaner, clearer bottles from washing operations.

**Description** — The electrode assembly consists of an electrode cylinder in which is inserted another alloy electrode. The water passing through the electrode cylinder is the conducting medium between the two electrodes. Only required maintenance is monthly cleaning of the special alloy electrode. Transformer — 110 v., 60 c., single phase, AC current. Transformers for other voltages and frequencies available. Assembly and transformer are set to furnish the correct number of volt amperes required to treat a particular water. Bulletin 350 on "Electro" Water Conditioner on request.



ELECTRIC WATER CONDITIONER ASSEMBLY

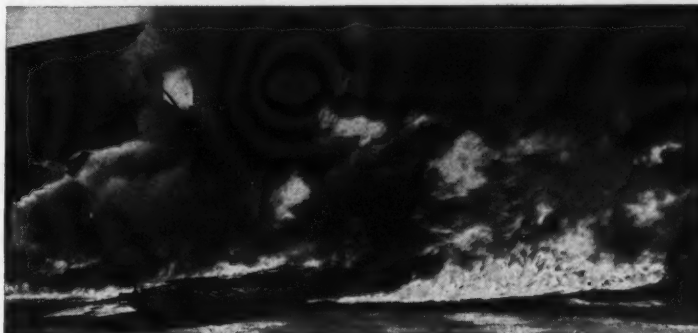
STOMAC ENG'G. CO., Dept. CP, 200 W. 25th St., Cleveland 13, Ohio.

When inquiring specify CP A2385 — see information request blank, pgs. 2-3

JULY-AUGUST, 1945

# WaterFOG AIDS FIREMEN

## IN "Spectacular Rescue"



There's an airplane inside that inferno—a dummy plane drenched in gasoline and then set on fire at the New Haven Fire Department's new training grounds.



Rockwood WaterFOG, delivered from two extension applicators, envelops a fireman who enters the roaring flames to save a dummy pilot, then rapidly cools and confines the blaze.



Speedier extinguishment of flammable liquid fires and an approximate 50% reduction in water damage are predicted by Chief Paul Heinz of the New Haven (Conn.) Fire Department, now that he has equipped his department with Rockwood WaterFOG nozzles and extension applicators.

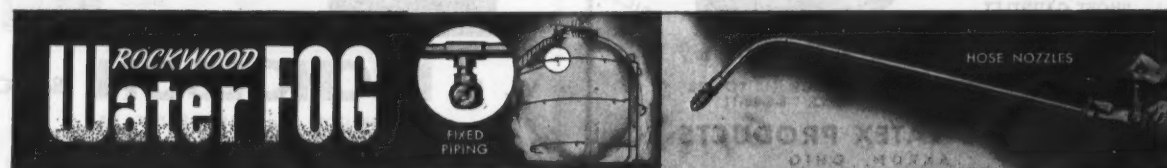
WaterFOG nozzles make water effective against flammable liquid fires by transforming it into myriads of tiny particles—far smaller than spray—with tremendous heat-absorptive power. There's no splashing—a cloak of cooling, smothering fog falls gently over the combustion area, quickly con-

trolling and confining the fire.

Industrial plants, too, protect lives and property with WaterFOG. Rockwood installations of fixed piping and WaterFOG heads are used by hundreds of refineries, chemical plants, utilities, etc. They are approved by Underwriters' Laboratories and Associated Factory Mutuals. Write for Bulletin 123. *Fire Officials and Executives!* Colored movie (16 mm.), showing tests of Rockwood WaterFOG, are available to city officials and business executives.

**ROCKWOOD SPRINKLER CO., 76 Harlow St., Worcester 5, Mass.**  
Specialists in Fire Protection Engineering Equipment and Installation since 1907

*Water Engineered by Rockwood Cools, Confines, Smothers Oil Fires*



OTHER TESTS SHOW HOW QUICKLY  
**WaterFOG**  
SMOTHERS FLAMMABLE LIQUID FIRES



Tank and trench are sprayed with gasoline under pressure.



After gasoline has been set afire, WaterFOG extinguished the blaze.

When inquiring specify CP A2386 . . . see information request blank, pgs. 2-3

# Stainless and alloy steel castings for resistance to corrosion, acid and heat!

**ATLAS  
STAINLESS STEEL  
CASTINGS**  
Division Atlas Foundry Company  
IRVINGTON 11, NEW JERSEY

Having pioneered many of the revolutionary casting methods used today, Atlas metallurgists are able to cope with all alloy steel casting problems. Complete facilities for casting all analyses alloys for all purposes. There is no obligation for a consultation with an Atlas metallurgist. Your inquiries are invited.

When inquiring specify CP A2387 — see information request blank, pgs. 2-3

MAIL COUPON FOR  
ILLUSTRATED FOLDER

Atlas Stainless Steel Castings  
525 Lyons Avenue, Irvington 11, N. J.  
Please send me "Stainless Steel Castings" bulletin.

Name.....  
Firm Name.....  
Street.....  
City..... State.....



## Now Also Available in NEW LIGHT DUTY STYLE

### All-Neoprene Latex INDUSTRIAL GLOVES

Impermeable to practically  
All Acids and Caustics  
Highly Resistant to Oils  
and Greases

#### 5 POPULAR STYLES

★ No. 5760-5, 18" LONG  
EXTRA LONG GAUNTLET  
GAUGE .030 TO .040  
SIZES 10, 11

★ No. 5737-2, 14" LONG  
LONG GAUNTLET  
GAUGE .030 TO .040  
SIZES 9-10-11-11½-12

★ No. 5705-5, 11" LONG  
SHORT GAUNTLET  
GAUGE .020 TO .025  
SIZES 9-10-11

★ No. 5703-5, 10½" LONG  
STANDARD DUTY  
GAUGE .015  
SIZES 7-8-9-10-11

★ No. 5702-5, 10½" LONG  
LIGHT DUTY  
GAUGE .010 TO .012  
SIZES 7-8-9-10-11

**SEIBERLING LATEX PRODUCTS CO.**  
AKRON, OHIO

200-5th Ave., Bldg., New York

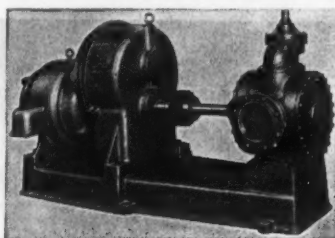
Merchandise Mart, Chicago

When inquiring specify CP A2388 — see information request blank, pgs. 2-3

## PRODUCTION

### Rotary Steam Jacketed Pump

Units in several capacities with gearhead motor or reduction gear drive; steam jackets located on both heads



ROTARY PUMP — steam jacketed

Uses — This unit is designed for handling sludge and other viscous liquids.

Features — Units in all of the several capacities offered operate on "bucket design", swinging vane principal, and are self-adjusting for wear.

Description — The unit illustrated here has a capacity of 500 GPM at 150 psi pressure and is powered by a 75 HP gearhead motor with a speed of 155 RPM on the drive shaft. The pump construction is iron, bronze-fitted and the entire unit is mounted on a cast-iron base. The steam jackets are suitable for pressures up to 125 psi and are located on both heads. Units in capacities of 50, 90, and 220 GPM, with gearhead motor or reduction gear drive are also available with steam-jacketed heads of this construction.

BLACKMER PUMP CO., Dept. CP, Grand Rapids 9, Mich.

When inquiring specify CP A2389 — see information request blank, pgs. 2-3

MORE AND MORE ENGINEERS SAY:

"Custom-Construction"

## NICHOLSON VALVES

Meet Our Specific  
Needs Better, Longer



Nicholson Control Valves are assembled from a choice of six different combinations of metals for body, seat, disc and stem, to suit your specific pressures and mediums . . . one reason why Nicholson Valves are today's "stand-outs" for efficiency and durability. For air, gas, steam, water, oil and other liquids. Pressures to 500 lbs.

Write for  
Catalog  
543

It describes in detail the "custom construction" of Nicholson Valves, made in many styles of lever, foot, solenoid and motor-operated types.



**W. H. NICHOLSON & CO.**  
181 OREGON ST., WILKES-BARRE, PA.

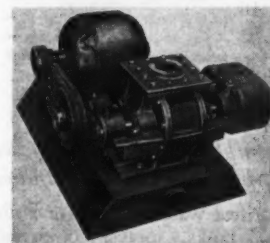
Valves ★ Traps ★ Steam Specialties

When inquiring specify CP A2390 — see information request blank, pgs. 2-3

## POTTSTOWN BLOWERS

GIVE YOU...

- ① Positive pressure — generated by positive mechanical rotary action.
- ② Efficient operation — built in by precision machining of all interior surfaces.
- ③ Dependable service — extra heavy cases, headplates, impellers, gears and bearings.
- ④ Low maintenance — no valves, sliding vanes, springs or other wearing parts.



Write today  
for Bulletin.

ALLEN BILLMYRE COMPANY  
445 Fayette Avenue  
Mamaroneck, N. Y.

## POTTSTOWN ROTARY POSITIVE DISPLACEMENT BLOWERS AND EXHAUSTERS

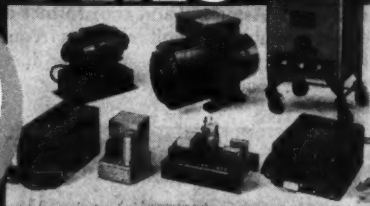
When inquiring specify CP A2391 — see information request blank, pgs. 2-3

QUICK DELIVERY ON

Electronic and Electrical

## POWER SUPPLIES

G. E.  
MALLORY  
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ELECTRONIC LAB.  
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KATO  
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● Leading makes are centralized at Allied. Many types are in stock. We handle Low Voltage High Current Supplies for aircraft, battery charging, plating, etc.; Vibrator and Rotary-Type Converters and Inverters; Gas-Engine, Wind-Driven and Motor-Driven Generators; Vibrapacks; Dry Batteries. Also Dry Disc, Electronic and Vibrator Rectifiers. Write, Wire, or Phone HAYmarket 6800

Helpful  
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Write for it!

Everything in Radio and Electronics  
**ALLIED RADIO CORP.**  
833 W. Jackson Blvd., Dept. 17-G-5, Chicago 7

When inquiring specify CP A2392 — see information request blank, pgs. 2-3



## SPRAY NOZZLES

*that Improve*  
**PROCESS CONTROL**

In processes calling for liquids to be sprayed in definite patterns, at specific rates, pressures and spray angles, *engineered* Spraying Systems nozzles do the job better and faster. For example, there is an atomizing nozzle like the one shown here that will give you a hollow cone pattern while spraying at a 4 GPH capacity under 40 lbs. pressure and with a 72° spray angle. Practically any other combination of these factors may be secured in one of the thousands of nozzles manufactured by Spraying Systems.

It's easy to find exactly the nozzle to make sprayed liquids do what you want when you refer to Catalog No. 22. Write for free copy today.

### SPRAYING SYSTEMS COMPANY

4037 West Lake Street  
Chicago 24, Illinois

**SPECIALISTS IN THE DESIGN AND MANUFACTURE OF SPRAY NOZZLES**

When inquiring specify CP A2393 — see information request blank, pgs. 2-3

## ALOYCO VALVES

**SOLVE DIFFICULT  
CORROSION PROBLEM**

**AT COASTWISE  
PETROLEUM COMPANY**

Before Coastwise Petroleum Co., Goodhope, La. began to use Aloyco Valves, valve life on Benzol Treaters was only a few months. To withstand the effluent which varies from sodium sulphate, benzene sulphonic acid to other acids and alkalis, they chose Aloyco Valves in Aloyco 20 — an alloy strongly resistant to sulphuric in various concentrations and solutions over a wide range of temperatures. AFTER ONE YEAR'S CONTINUOUS SERVICE, the Aloyco Valves are still on the line, give promise of remaining indefinitely. Investigate what they can do in your plant. Write us today.

Note non-fouling double disc wedge. Free to rotate, it provides drop-tight closure. Valve fabricated of stainless steel even to bonnet bolting.

**ALOYCO**

*Stainless Steel*  
**VALVES and FITTINGS**

GATE VALVES • GLOBE VALVES  
Y VALVES • CHECK VALVES  
LEVER THROTTLE GATE VALVES  
TANK VALVES  
SCREWED FITTINGS  
FLANGED FITTINGS  
GAGE GLASS FITTINGS

**ALLOY STEEL PRODUCTS COMPANY, INC.**  
100 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

When inquiring specify CP A2394 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## PRODUCTION

**Trailer's Low Clearance Is  
Six and One-Fourth Inches**  
*Handles loads of 2½ tons with ease and safety*



### LOW-SWUNG HEAVY DUTY TRAILER

**Uses** — For heavy duty service where low, underslung platform design is desired to facilitate loading from floor, skid or rack.

**Features** — Exceptionally low center of gravity. Platform is only 6¼ inches from floor. All welded steel framework, strongly braced and heavily reinforced.

**Description** — Platform is 38 x 78 inches. Wheels are of heavy metal, have rubber tires and are equipped with roller bearings. Drums, barrels and other loads liable to shift, are held secure by strong chains. Exclusive of drawbar (40 inches long) the overall length of the trailer is 126 inches. Bulletin sent on request.

THE PALMER-SHILE CO., Dept. CP, 7128 West Jefferson St., Detroit, Mich.

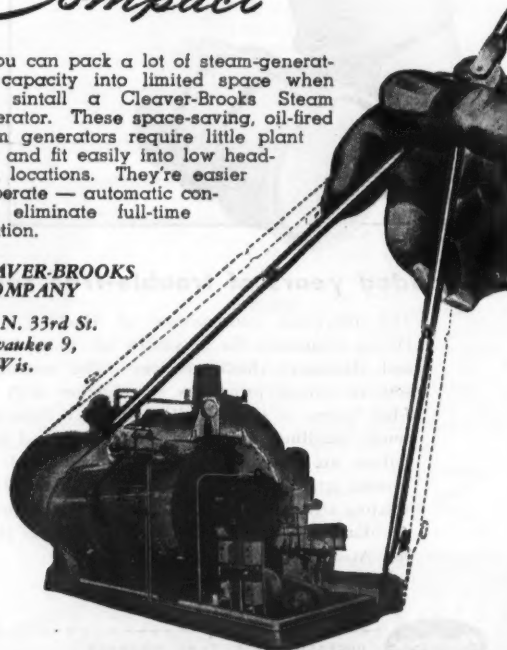
When inquiring specify CP A2395 — see information request blank, pgs. 2-3

## Compact

• You can pack a lot of steam-generating capacity into limited space when you install a Cleaver-Brooks Steam Generator. These space-saving, oil-fired steam generators require little plant area and fit easily into low head-room locations. They're easier to operate — automatic controls eliminate full-time attention.

### CLEAVER-BROOKS COMPANY

5124 N. 33rd St.  
Milwaukee 9,  
Wis.



**Cleaver-Brooks** **STEAM GENERATORS**

When inquiring specify CP A2396 — see information request blank, pgs. 2-3

**SUPERIOR  
PROCESSING  
FASTER**  
*— at lower costs*

### Dispersing

solids in liquids, solids in solids, or liquids in liquids, PREMIER insures immediate chemical reaction — more finely divided colloidal suspensions.

### Disintegrating

every particle of fiber or cellulose in animal or vegetable tissue... instantly exposes these particles to the extractive action of the suspending liquid.

### Emulsifying

achieving non-separating emulsions with plunit ratings as low as ½.

### Homogenizing

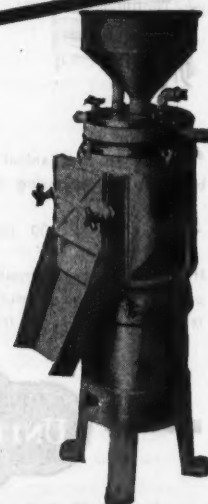
assuring superior homogenized products by compelling uniform distribution of fat globules throughout the mix.

### SIMPLEST ROTOR-STATOR

Easy to {  
CLEAN  
OPERATE  
ADJUST



Write for this important brochure on superior processing describing the complete line of PREMIER COLLOID MILLS. Hourly capacities from 10 to 3000 gallons.



## PREMIER MILL CORPORATION

Laboratory and Plant: Geneva, New York  
General Sales Office: 110 E. 42d St., New York 17, N. Y.  
Canadian Agents: 454 King Street W., Toronto, Ont.

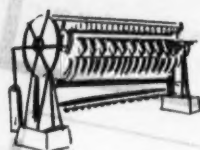
When inquiring specify CP A2397 — see information request blank, pgs. 2-3

## THE O.D.S. PUMP

for  
feeding plate  
and frame  
presses or other  
pressure filters



### Why it Should be Used



1... the flow is straight line rather than centrifugal; there's no whirling or churning action as found in centrifugal pumps; corroding and abrading of pump parts is kept to a minimum; parts maintenance is low.



2... friable crystalline products or floc are protected against breakage which violent, centrifugal action tends to promote.

3... no stuffing box and packing; hence no stuffing box maintenance or shaft scoring due to improper and faulty packing.

4... no mechanical linkage to the diaphragm which moves between two opposing pressures with no extreme on either side.

5... up to 100 pounds working pressure.

If you are having trouble with pumps feeding plate and frame presses or other pressure filters, try the ODS Diaphragm Pump. It's good! Sizes range from 1 to 3 inches.

OLIVER  
UNITED FILTERS  
INC.

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11  
California



Chicago 1, Ill.  
221 N. LaSalle Street  
Western Sales Division  
Oakland 1, Calif.  
2900 Glascock Street

Canada: Sales & Manufacturing Representative

E. Long Limited — Orillia, Canada

Factories: Oakland, Calif. — Hazlet, Pa. — Orillia, Canada — Melbourne, Australia  
7-0UF-4

When inquiring specify CP A2398 — see information request blank, pgs. 2-3

## PRODUCTION

### Supports & Wet Strength Papers For High Suction Applications

Supports used to advantage with all grades, even soft; treated papers withstand strong suction, offer greater filtering capacity than untreated types



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Uses — Any grade of filter paper such as the makers (S&S) — even soft grades — when used with these supports, properly adjusted may be subjected to high suction without danger of bursting at the apex. Papers especially treated for wet strength also conveniently provide excellent service under strong suction.

Features — These supports are made of special textile material which does not retard filtration. The wet strength papers withstand strong suction without use of supports. Folded filters made from these wet strength paper are practically tear proof.

Description — The supports are supplied in the form of discs which are folded with the filter paper when forming into the usual cone shape (Figures 1-4). Supports are available in diameters of 2 and 5 inches. The wet strength treatment as applied to the wet strength papers considerably reduces the ash content, wherever the ash content is of importance. They permit about 300% more gallons of



### 2-PIECE ACID DRUMS

#### for added years of trouble-free service

The two-piece construction of Hackney Acid Drums minimizes the possibility of chime failure and eliminates chime crevices. The reinforced, separate chime protectors — together with the I-bar hoops — substantially increase resistance to rough handling and abuse. Corrosion and bung failure are avoided by the two-pass weld and careful attachment of heavy forged spuds. Heat-treating after complete fabrication further improves the durability and resistance to corrosion of Hackney Acid Drums.

Write today for full details.



#### PRESSED STEEL TANK COMPANY

Manufacturers of Hackney Products

1387 Vanderbilt Concourse Bldg., N. Y. 17 1463 S. 66th St., Milwaukee 14  
208 S. LaSalle St., Room 2085, Chicago 4 568 Roosevelt Bldg., Los Angeles 14

Containers for Gases, Liquids and Solids

When inquiring specify CP A2399 — see information request blank, pgs. 2-3

## FOR LATE NEWS ON COTTON TEXTILES

### Call On Burcott Mills!

#### Suppliers of

- DUCK
- Cheesecloth
- Muslin
- Sheeting
- Factory Towels
- Many Others

For general use the supply of Industrial Textiles is limited... Even so, don't give up! Our 44 years' experience supplying the production needs of the chemical, machinery, rubber, agricultural, food, paint and other leading industries may help answer your textile problems. Please specify requirements, priority rating and end use when making inquiries. Then we can immediately advise you of possible delivery dates! Write today.

**BURCOTT MILLS**  
622 West Fulton St., Chicago 6, Ill.

When inquiring specify CP A2400 — see information request blank, pgs. 2-3

### LOOK INTO GAST ROTARY VACUUM PUMPS

Look into Gast Rotaries... hundreds of manufacturers have. They're now using, with great success, Gast Vacuum Pumps as standard equipment on applications ranging from automatic chuck operations to milking machines, filtration, packaging and labeling, paper feeding, vacuum printing frames, brake boosters, etc.

Look into the advantages of Gast Rotary design for the reasons back of Gast's superior performance. Note the sliding vanes held against cylinder wall by centrifugal force, no springs, providing Automatic Take-Up for wear; Forced Air Cooling, Automatic Shaft Seal, and no reciprocating parts. It will pay you to look into Gast Rotary Vacuum Pumps.

Write today for  
FREE CATALOG

**GAST AIR**  
MOTORS • COMPRESSORS  
VACUUM PUMPS

10FF60 (1/2 H.P.) Heavy  
Duty Rotary Vacuum Pump

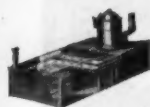
GAST MFG. CORP., 101 Hinkley St., Benton Harbor, Mich.

When inquiring specify CP A2401 — see information request blank, pgs. 2-3



## What is YOUR SEPARATION PROBLEM?

**THE Eriez Non Electric Permanent Magnetic Separator** is simple and easy to install on chutes, conveyors, feed tables or spouts . . . It will clean your materials, eliminate fire hazards and prevent ferrous objects from getting into your processing machinery. Note below typical installations.



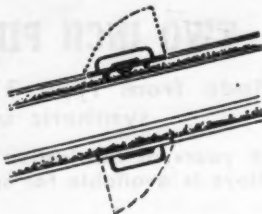
PAT.  
PENDING

### ERIEZ NON-ELECTRIC PERMANENT MAGNETIC SEPARATORS

#### IN LIQUIDS

The Eriez can be submerged in liquids, covered with a tough, flexible sheet. Power of the magnet pulls all particles of a ferrous nature from your liquids. Strip the non-conducting material from the magnet and the magnet is clean. Replace and you're ready to go.

Eriez Non Electric Permanent Magnets are serving industry everywhere.



Address: 16 East 12th St.

**ERIEZ MANUFACTURING COMPANY**  
Erie, Pennsylvania

When inquiring specify CP A2402 — see information request blank, pgs. 2-3

## WIRE PRODUCTS

#### STRAINERS

#### FILTERS

#### GRIDS

#### DIPPING BASKETS

#### • WIRE CLOTH

#### FABRICATED PARTS

Adequate facilities available to handle your requirements for wire-mesh and wire fabricated products. Every operation from drawing and weaving to finished product is done in a Jelliff plant — service and quality assured.



**THE C. O. JELLIFF MFG. CORP.**

42 Pequot Road, Southport, Conn.

When inquiring specify CP A2403 — see information request blank, pgs. 2-3

## PRODUCTION

liquid to be filtered than good non-treated papers. Literature on request.

CARL SCHLEICHER & SCHUELL CO., Dept. CP, 116 W. 14th St., New York 11, N. Y.

When inquiring specify CP A2404 — see information request blank, pgs. 2-3

### Instant Steam Tube Heater

*Low friction loss type for use with gravity recirculating system*



U-tube water heater

**Uses** — Numerous industrial applications such as providing hot water for cooking, sterilizing and cleaning operations. It may also

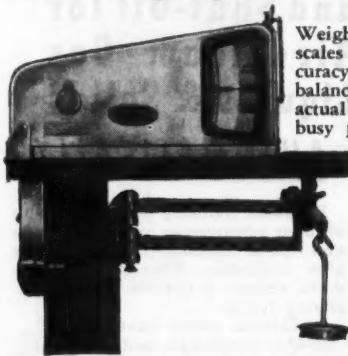
be used as a converter to heat water in a conventional hot water heating system or in connection with radiant heating installations.

**Features** — Compact, low friction loss type for use wherever minimum friction drop in the water space is necessary. **Description** — Made with a steel shell and a 1/4 in. OD No. 16 BWG Copper U-tube removable heating element. The steam flows through the tubes and the water is in the shell. It and various other heaters are described in Bulletin 35-76 B. This particular heater — Type R is furnished in 22 sizes.

AMERICAN DISTRICT STEAM CO., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP A2405 — see information request blank, pgs. 2-3

### Blind Weighing vs. Visible Weighing



**EXACT WEIGHT Indicator** — Simplifies act of fast, accurate weighing . . . easy to instal . . . furnished with rebalancing attachment for quick rebalancing for portable scales . . . no maintenance . . . trouble-free operation.

Weighing on regular platform scales is a balancing act. Accuracy depends upon exact balance of the beam. Under actual working conditions in busy places not one package in ten is accurate. **EXACT WEIGHT Indicators** do this: (1) eliminate blind weighing of balancing beams and substitute visible weighing with a dial (2) Speed up operations by snubbing scale's action with a simple dashpot (3) Improve weights by having every package accurate. It's a great improvement . . . costs little and saves much. Write for details.

**INDUSTRIAL PRECISION**  
*Exact Weight Scales*  
**THE EXACT WEIGHT SCALE COMPANY**

31 W. Fifth Ave., Columbus 8, Ohio  
Dept. E, 783 Yonge St., Toronto, Canada

When inquiring specify CP A2406 — see information request blank, pgs. 2-3



## STITCH WITH STEEL TO SAVE MANPOWER

With a press of the pedal, rapidly formed steel stitches drive continuously through tough box-board. Stitching with steel is just that fast . . . and speed saves manpower by increasing production volume. Acme Silverstitchers prove it.

Stitching with steel makes stronger carton closures, gives better container appearance . . . with economy. Acme Silverstitchers prove this, too . . . every time!

Silverstitchers are power-driven machines that form staples from continuous, long-length coils of steel wire . . . Silverstitch Stapling Wire. Silverstitchers have few moving parts . . . vital parts reversible for long service. The result: years of top performance through simplicity of operation.

For a photo story on how Acme Silverstitchers can help you, write today for informative folder.

### ACME STEEL COMPANY

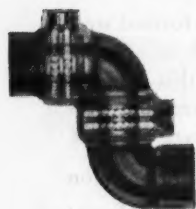
2808 ARCHER AVENUE • CHICAGO 8, ILLINOIS

ALSO MANUFACTURERS OF ACME STEELSTRAP AND STRAP APPLYING EQUIPMENT

When inquiring specify CP A2407 — see information request blank, pgs. 2-3



**MORE MILES  
TO THE FOOT...**  
*with*  
**CHIKSAN**



### CHIKSAN

Formula for  
Perfect Flexibility:

$$BB_2 + EP = \frac{P/V}{LT}$$

BB<sub>2</sub> = Double Rows of  
Ball Bearings.

EP = Effective Pack-Off

P/V = Pressure or

Vacuum

LT = Low Torque

With oil wells going deeper and deeper, it may not be long until depths are stated in miles... not feet! Drillers get more miles of service per foot of rubber rotary hose by using a CHIKSAN Ball-Bearing Swivel as end connection (shown in photo above). You can protect your rubber hose and make it last longer, too, by using Chiksan Swivels for connection to gas, oil, air or water outlets... and on all hose reels. Over 500 different types, styles and sizes for every purpose. Write for Catalog.

Representatives in Principal Cities.  
Distributed Nationally by CRANE CO.



BALL BEARING  
SWIVEL JOINTS  
FOR ALL PURPOSES

**CHIKSAN COMPANY**  
BREA, CALIFORNIA

When Inquiring specify CP A2408 — see information request blank, pgs. 2-3

## PRODUCTION

### Portable Collector Draws Dust Laden Air at 5000 LFPM

*Completely fireproof; flexible hose and  
nozzle adapts units for use in cleaning  
machinery; caster bases available*



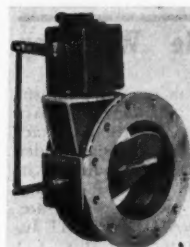
Motor, filters, pan in  
compact arrangement

**Uses** — In dust removal in grinding, buffing, polishing, sanding and similar dust producing operations; also in saving valuable dusts.

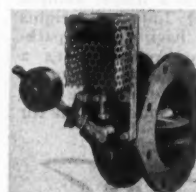
**Features** — High efficiency of collector in base of unit relieves cloth filter of much of its function and in some collection operations can be dispensed with entirely. The unit has no shake-out system, which in cleaning filters, could foul rest of the equipment. Muffler, an added feature does not change contour of unit and serves to deaden any sounds produced by exhaustion of air. Completely fireproof.

**Description** — The principle underlying the unit is the compound action of air born dust, filtered by centrifugal separation from air stream and second, by impingement on the filter surface. Maintains constant static air suction of more than four inch velocity at 5000 LFM. Collects very

### Instant Control and Shut-Off for Air • Steam • Gas Liquids & Solids AUTOMATICALLY



Rockwell Butterfly Valve  
fitted with one of several  
types of electric motor con-  
trols.



Rockwell Butterfly Valve  
equipped with solenoid  
control.

Rockwell Butterfly Valves — with all their advantages of full flow area and quick manual control — are also available, where fully automatic control is required, in the following types:

- 1—Electric motor control.
- 2—Air diaphragm motor control.
- 3—Solenoid valve control.
- 4—Hydraulic or air cylinder control.
- 5—Float control.

Approved automatic control units are fitted to standard valves for 1" to 48" pipe sizes. The valves may be made of any metal to meet any corrosion or temperature conditions. They are easy to install at low cost.

Write for Catalog No. 406 to W. S. Rockwell Company, 56 Church St., New York 7, N. Y.

**ROCKWELL VALVES**  
SLIDE and BUTTERFLY  
FOR AIR • GAS • LIQUIDS • SOLIDS

When Inquiring specify CP A3409 — see information request blank, pgs. 2-3



### TWO INCH PIPE HEADER

Made from Type 316, used in the  
synthetic industry

25 years of fabrication with all grades of  
alloys is available for special work.

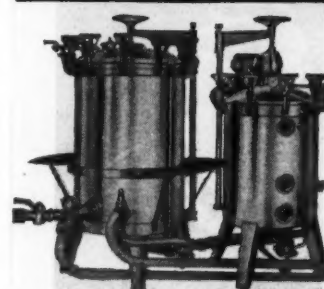
Write for Bulletin CP 30

**ALLOY MANUFACTURING CO.**  
30th Street Pittsburgh, Pa.

When Inquiring specify CP A2410 — see information request blank, pgs. 2-3

INDUSTRIAL PLANTS  
CHEMICAL PLANTS  
FOOD PLANTS  
..Your PLANT!

THERE IS NO OTHER  
*Filter*  
LIKE THIS



The Stainless Steel  
**KLEIN**  
IDEAL DIATOMACEOUS  
EARTH FILTERS AND  
SLURRY FEEDERS

Many important and exclusive improvements and radical innovations have been incorporated in the precision-built Klein Ideal Diatomaceous Earth Filters and Feeders. Constructed of stainless-steel they utilize a new exclusive filter principle that will bring you a new high in maximum efficiency, minimum maintenance and product uniformity.

Illustrated are the radically different Klein Ideal Filter Leafs with discharge tubes that practically eliminate the danger of clogging.



ESTABLISHED 1909

**KLEIN**

FILTER & MANUFACTURING COMPANY  
1225-29 SCHOOL STREET • CHICAGO 13, ILLINOIS

WRITE TODAY for  
full information and  
the latest Klein Bulletin.

When Inquiring specify CP A2411 — see information request blank, pgs. 2-3



## PRODUCTION

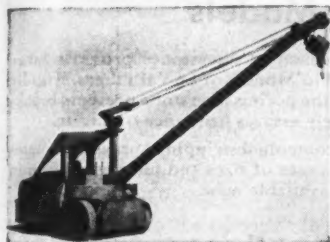
minute dust particles. Filter assembly consists of two corrugated layers of wire mesh covered with 60 mesh cloth. Units weigh from 75-200 lbs. and are from 30 to 51 inches high. Literature on request.

DUST FILTER COMPANY., Dept CP, 4418 No. Clark St., Chicago, Ill.

When inquiring specify CP A2412 — see information request blank, pgs. 2-3

## One Man Crane Unit — 2900 Lbs. Capacity at 15 Ft. Radius

Full hydraulic operation of swing mechanism and steering; boom swings 210 degrees



CRANE-boom 20 ft. long

**Uses** — For loading and unloading and stacking of materials in and around plats, yards, storehouses and shipping platforms. Handles boxes, crates, freight in and out of box and flat cars, moves castings, steel stock and other bulky and heavy loads.

**Features** — One man operated unit with exceptional maneuverability. Wheel base of 10' 9" permits rapid operation in limited space. Full hydraulic operation of swing mechanism and steering plus position of operator affording clear view from all angles makes for easy, efficient handling.

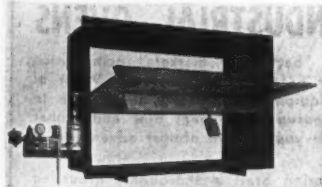
**Description** — Lifting capacity 2900 lbs. at 15 ft. radius; 15,000 lbs. at 31½ ft. radius. Boom swings in a full 210 degrees; short turning radius of chassis. Steering is accomplished by dual wheels operating on a pivoted axle. The entire unit is operated by a three speed transmission from a 57 HP gas engine for traveling, swinging, hoisting and boom hoist. Three traveling speeds forward and one reverse. Boom is goose-neck type 20 feet long, furnished either in one piece or telescopic. Booklet 2071 on request.

LINK-BELT SPEEDER CORP., Dept. CP, 307 So. Michigan Ave., Chicago 11, Ill.

When inquiring specify CP A2413 — see information request blank, pgs. 2-3

## Double Damper Smoke Control

Improves boiler performance and saves fuel



Control in on-off period

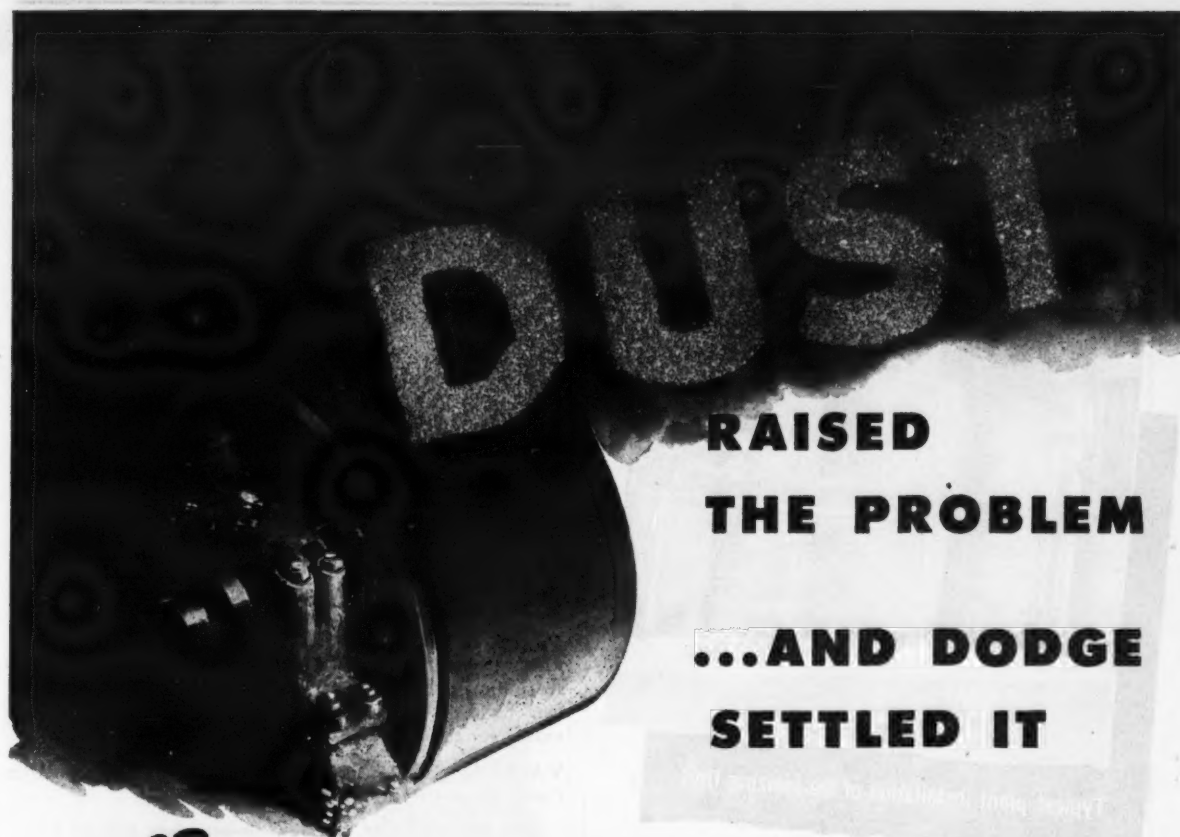
**Uses** — Adjusts smokestack to daily weather conditions to eliminate excess smoke, reduce excess stack temperatures, maintain uniform volume of draft and aid in stopping combustion fuel losses.

**Description** — Made in a number of sizes and installed with either electric, hydraulic, pneumatic control system so that it may be designed to meet practically all conditions where there are excess smoke and combustion losses.

CAMPBELL ENGINEERING CO., Dept. CP, Appleton, Wis.

When inquiring specify CP A2414 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



## RAISED THE PROBLEM ...AND DODGE SETTLED IT

Destructive dust, working its abrasive havoc inside bearings, has been one of industry's toughest problems—especially in steel mills, foundries, cement, gypsum, abrasives, roofing and similar plants. Dodge attacked this problem—and settled it—with the Dodge-Timken Type C Bearing. Transmission skill devised a seal which prevents seepage of abrasive dust to the polished surfaces of the bearing.

Now, plants in which these destructive materials are encountered in the manufacturing process can have a smooth flow of power, with a minimum of maintenance. Dodge-Timken Type C Bearings may be literally buried in abrasive dust, yet they operate efficiently, under heavy loads and at high speeds.

Dodge-Timken Type C Bearings are assembled, lubricated and adjusted at the factory. They are available in distributor's stocks. Call the Dodge Transmissioneer in your territory for information about these and other new developments in power transmission equipment, to help increase production efficiency and lower power costs.

DODGE MANUFACTURING CORPORATION  
MISHAWAKA • INDIANA

Copyright 1946 Dodge Mfg. Corporation



There are 210 Dodge factory graduate Transmissioneers, located in principal cities, to show you new and better ways of transmitting power.

Sign of the Dodge Transmissioneer

# DODGE

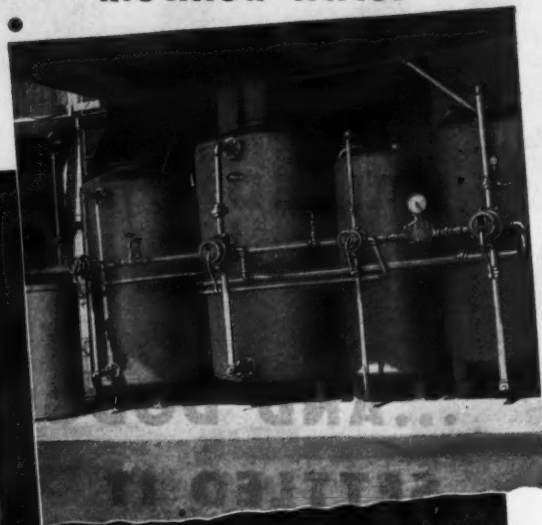
MISHAWAKA

TRANSMISSIONEERED MEANS ADVANCED DESIGN IN POWER DRIVES

DODGE ROLLING BEARINGS . . . THE 30,000 HOUR LINE

When inquiring specify CP A2415 . . . see information request blank, pgs. 2-3

## De-ionized water replaces distilled water



Typical plant installation of De-ionizing Unit

At 1% to 10% of the cost of distilled water, ILLCO-WAY De-ionizing Units are daily producing pure water comparable to that obtained by distillation. The installation pictured above (aircraft plant, 3,000 gph) is typical of the ILLCO-WAY equipment that has been purchased by industrial, chemical and pharmaceutical plants for obtaining high-purity water. Lower operating costs of De-ionizing often pay for the installation in a few months, and these savings continue for the long life of the unit. . . . No fuel, no cooling water required, no periodic dismantling for cleaning. Flow rates up to 500,000 gph.

ILLINOIS WATER TREATMENT COMPANY  
849-7 Cedar Street, Rockford, Illinois



**PORTABLE LABORATORY UNIT**  
12 gallons of pure water per hour.  
Quality of water comparable to that produced by distillation.  
Daily meeting exacting standards of industrial, chemical, university, city and state laboratories.

Water Treatment Engineering

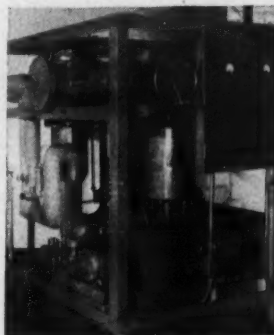


When Inquiring specify CP A2410 — see information request blank, pgs. 2-3

## PRODUCTION

### High-Vacuum Pumping System

*Eliminate necessity of setting-up systems;  
in various capacities and ultimate vacuum*



**Fully automatic vacuum unit**  
the necessity of setting up high vacuum pumping systems. One connection only is necessary.  
**Description** — The unit is fully automatic and incorporates various safety and protective features. Vacuum conditions are indicated continuously in control panel, and recorders may be used. The mounting is rigid construction providing for casters and portability.

VACUUM ENGINEERING DIV., National Research Corp., Dept. CP, Boston 15, Mass.

When Inquiring specify CP A2417 — see information request blank, pgs. 2-3

**Uses** — As a complete high vacuum system in small compact unit for direct connection to system to be evacuated, being available in various capacities and ultimate vacuum.  
**Features** — Units consist of mechanical forepump, diffusion pump, high vacuum valves, gauges and control panel. Mechanically refrigerated traps built-in on special order. These systems are simple to operate and eliminate

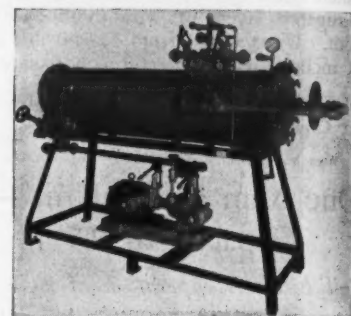


**Ask Wakefield.** This office had too few outlets—needed a rewiring job, tough because of concrete ceilings. Wakefield GRENADIERS gave the answer—put more light on desk tops and eye-comforting light on walls and ceilings, to cut office errors, reduce eyestrain. Existing outlets met the need because the Grenadier provides its own wire-way to carry feed wires. Your lighting problem may need different treatment but Wakefield has the answer! Write The F. W. Wakefield Brass Co., Vermilion, Ohio.



When Inquiring specify CP A2418 — see information request blank, pgs. 2-3

## Large Capacity Clarification With FULLY MECHANIZED CLEANING



**LE VAL  
Porous  
Stone  
Filters**

### In POLY-FLO Models

A multiple arrangement of filterstones provides large capacity in the Poly-Flo Models of Le Val Filters. Rigidly supporting filter-aid, the porous filterstone prevents breakthrough, and positively assures brilliance of filtrate.

Cleaning by valve-controlled stripping sprays eliminates messy hand labor. Ranges of sizes and full description in new Bulletin F-103, available now.

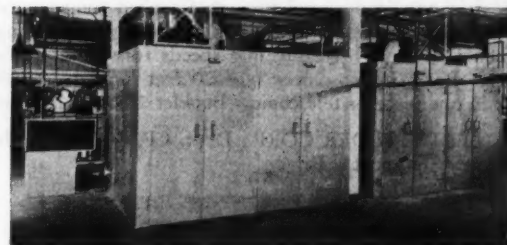
## LE VAL FILTERS WHITING CORPORATION

District engineers in 26 principal cities

15667 Lathrop Ave. Harvey, Illinois

When Inquiring specify CP A2419 — see information request blank, pgs. 2-3

## PLAN NOW for FUTURE FINISHING



## with KIRK & BLUM INDUSTRIAL OVENS

In the coming post-war "battle for markets" competition will be keener than ever before in our history. What of your product finishing equipment . . . will it be able to carry on under the increased load, meet new and higher finishing standards, enable you to take utmost advantage of post-war opportunities?

The Kirk & Blum Engineering Staff is thoroughly grounded in the planning, design and erection of complete finishing equipment. These systems are guaranteed to increase production, reduce fuel and labor costs, conserve floor space, promote maximum safety.

Send for Booklet "Industrial Ovens"

## The KIRK & BLUM Manufacturing Co.

An Organization of Engineers and Mechanics  
2833 SPRING GROVE AVE. CINCINNATI 25, OHIO

When Inquiring specify CP A2420 — see information request blank, pgs. 2-3

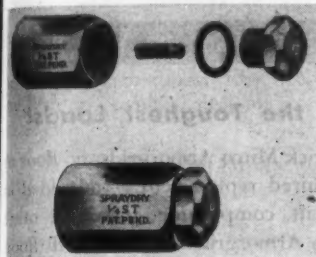
CHEMICAL PREVIEW



## PRODUCTION

### Four Part Spray Drying Nozzle

Many sizes for selection to exact capacities;  
finest atomization at given pressures



**Uses** — This 1/4 ST spray nozzle is suitable for a wide range of spraying operations.

**Features** — These nozzles use renewable cores and orifice inserts and all component parts are accurately machined. Orifice inserts are heat treated and lapped and are available

Nozzles — renewable cores, orifices

in either hardened steel or tungsten carbide with flat or cup tops. Nozzles selected to exact requirements give finest atomization for given pressure.

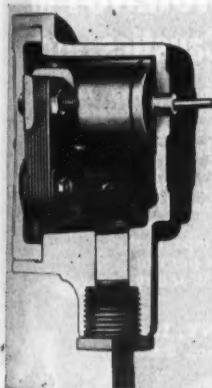
**Description** — For example, suppose a dryer is set up to use a pressure of 5000 lbs. and the liquid to be sprayed can be delivered to the nozzle at the rate of 53 gallons per hour. The variety of sizes offered permits selection of a nozzle of that capacity. Spray pattern is hollow cone with uniform distribution and spray angles are predetermined for each nozzle size. The type 1/4 ST illustrated here has a 1/4 in. female threaded pipe connection and its overall dimensions are 1 3/8 in. hex. x 1 1/8 in. long. Complete tables showing capacities at pressures ranging from 1000 to 7000 lbs. in 85 separate combinations of orifices and core sizes and types are given in catalog No. 22.

SPRAYING SYSTEMS CO., Dept. CP, 4037 W. Lake St., Chicago 24, Ill.

When inquiring specify CP A2421 — see information request blank, pgs. 2-3

### Explosion Proof Motor for Use with Automatic Controls

Meets Underwriters' requirements for use in atmospheres containing gas, solvent vapors



Motor in bronze casting

**Uses** — For use in connection with automatic controls in industrial processes where atmospheres containing ethyl ether vapor, gasoline, petroleum, naphtha, alcohols, acetones, lacquer solvent vapor and natural gas are found. The motors are being used in plants producing chemicals, synthetic rubber and other vital supplies.

**Description** — This motor is totally enclosed in a bronze casting with removable screw cover and adapted for explosion-proof conduit mounting. It can be supplied in various shaft speeds, voltages and frequency. It carries

Underwriters' approval label, Class 1, Grade C and D, for hazardous locations.

WARREN TELECHRON CO., Dept. CP, Ashland, Mass.

When inquiring specify CP A2422 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## Aids to Better Production



Item NS-428

### Machine Tender on Wheels

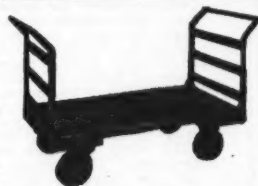
Built entirely of sheet steel and angle iron, with tubular handles. All welded construction. Overall dimensions: 30" long, 16" wide, 32" high. Top deck 2" deep, lower deck 3" deep. All deck edges turned to eliminate roughness. Four 5" x 1" steel wheels, rigid in front, swivel in rear. Finished in standard P.S. gray. Weight approximately 65 lbs.



Item NS-577

### Slag Cart

For handling slag, pig iron, hot castings, forgings and other heavy materials. Built of 1/2" plate with heavy angle iron legs. Tubular handles continue around bottom of frame to form a rocker-shaped bumper at front to facilitate ease of dumping. Reinforcing bar of 1/2" steel is welded around top edges of all four sides. Two 18" x 3" wheels, roller bearing. Overall dimensions: 35" wide, 67" long, 26" high. Body dimensions: (Top) 29" wide, 43" long, 16" deep; (bottom) 24" x 24". Weight approximately 425 lbs.



### Double End Truck

General purpose push truck, with hardwood platform 52" long by 27" wide. End racks are steel, with push handles 36" from floor. Four 6" x 2" metal caster wheels—two swivel, two rigid. Finished in standard P.S. gray.

Item X-114-M (Metal Wheels)

\$3750

Item X-114-R (Rubber Tired Wheels)

\$4400

### Turn Table Tilt Truck

Item NS-21



A sturdy utility truck for factory or warehouse. Turns in its own radius. Platform built of 1 1/2" hardwood, 48" long, 28" wide, 10" off floor. Reinforced at ends and across middle with bolted-on 1 1/2" hardwood timbers. Four ball-bearing wheels make travel easy. Center wheels are 6" diameter, rigid; end wheels are 5" diameter, swivel. Uprights are of 1 1/2" x 1 1/2" x 1/4" angles, with 1 1/2" x 1/4" bar stock welded braces. Handle is 1" pipe. Standard P.S. gray finish. Weight approximately 75 lbs.

Item NS-21-M (Metal Wheels)

\$3150

Item NS-21-R (Rubber Tired Wheels)

\$3800



### Automatic End Dump For Use with Lift Truck

For handling hot metal parts, scrap, stampings, other heavy materials. Rockers geared to the truck. Self-sealing, smooth operating. Built of heavy steel plate, reinforced with sturdy angles. All welded construction. Two standard sizes.

Item S-878-A

Capacity 1/2 cu. yd.

Approximate weight 600 lbs. \$8500

Item S-878-B

Capacity 1 cu. yd.

Approximate weight 750 lbs. \$9500

Be sure to give floor clearance of your lift truck when ordering.



### Wood Box—Tilt Type Metal Bound

General utility, push truck. Half-inch tilt for easy wheeling and short turning of corners. Four 5" metal casters—two rigid, two swivel. Two standard sizes.

Item PS-91-A 24" wide, 36" long, 26" high overall, Weight, 185 lbs. \$2950

Item PS-91-B 28" wide, 48" long, 30" high overall, Weight 260 lbs. \$3350



Item NS-934

### Side Dump Trailer Truck

For hauling metal shavings, light scrap, rubbish, etc. Simple pivot design eliminates need for gears, and allows dumping of load to either side. Locking pin holds body upright for loading and hauling. Capacity approximately 2 cu. yds. Recommended load rating 3 tons. Overall width of 34" enables easy handling through narrow aisles. Framework is of structural channel iron. Body, 1/4" boiler plate, reinforced at pivot points; top edges angle reinforced. All welded construction. Inside body measurements: 30" wide, 96" long, 36" deep. Pull bar 30" long. Overall measurements: 9" long (exclusive of pull bar) 34" wide, 56" high. Four 12" x 4" metal wheels, roller bearing, rubber tired. Fifth wheel construction. Weight approximately 1400 lbs. Finished throughout in standard P.S. gray.



Item NS-506

### Combination Truck and Drain Rack

Loads Automatically

As truck is tilted against drum, steel fingers grip the flange at top. Loading is completed as truck is rocked back to wheeling position. Free-rolling wheels make light work of trucking the heaviest drums. Slight downward push on handles lays truck on floor with wheels raised free, thus providing convenient draining position. Heavy angle iron frame, tubular handles, all welded construction. Two 8" roller bearing wheels. Weight approximately 90 lbs.

Detachable Handles. When used as drain or storage rack, handles can be detached. Thus conserving floor space and permitting one pair of handles to serve any number of trucks.

Item NS-506 \$4250

(Handles welded to frame)

Item NS-506-DH \$4450

(Truck and detachable handles)

Item NS-506-R \$3250

(Item NS-506-DH without handles)

Item NS-506-H \$1200

(Detachable handles only)



Item NS-948

### Book Truck for Curing Rubber

Also serves in the production of plastics and other products. Shelves are made of sheet steel, crimped to provide high rigidity. Long, stiff extension springs assure easy raising and lowering of individual shelves. When raised, shelves automatically stay in tilted position. Heavy casters permit easy moving. Custom built to exactly fit user's product and plant requirements.

**Palmer Shile Co.**  
7128 West Jefferson Ave., DETROIT 17, MICH.

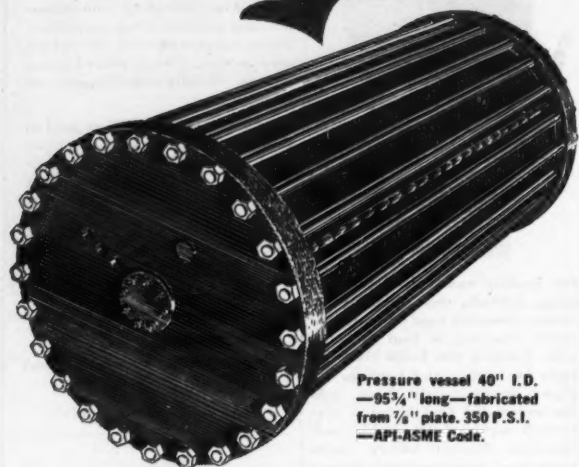
When inquiring specify CP A2423 . . . see information request blank, pgs. 2-3

**SKILLED**

**ENGINEERING  
CRAFTSMANSHIP  
PRODUCTION**

**National  
WELDED PRODUCTS**

**from Open-Hearth, Stainless,  
Alloy and Clad Steels**



Pressure vessel 40" I.D.  
—95 1/4" long—fabricated  
from 3/4" plate. 350 P.S.I.  
—API-ASME Code.

## Building the "Tough" Jobs of Industry for 50 Years

It is National's business to solve difficult fabrication problems—to this end we have fully coordinated more than fifty years of unexcelled engineering "know-how" . . . modern equipment . . . skilled manufacturing experience with steels and alloys to meet the highest codes and requirements.

National is a manufacturer's manufacturing organization you should select for needed peacetime equipment fabrication.

**National**

**ANNEALING BOX COMPANY**

API ASME U-68 U-69 Codes · Stress Relieving · X-ray  
Pledged to Quality Since 1895

**WASHINGTON, PENNA.**

When Inquiring specify CP A2424 — see information request blank, pgs. 2-3

## PRODUCTION

### Steam Jet for Simultaneous Heating, Agitating, Circulating

*Maintains uniformity of solutions; speeds pickling jobs; easily installed in tank*



Break-proof  
Steam Jet

Jets may be placed in corners or along walls of tank or suspended along side or

**Uses** — For simultaneous heating, agitating, circulating solutions in tanks and vats. Used with pickling tanks and water rinse tanks, this jet maintains uniformity of the solution and rapid action in all parts of the tank.

**Features** — The jet is easily installed by connecting to present line; no special piping or additional lines are necessary. Jets are practically break-proof, being made of wrought Monel and welded with Monel electrodes. They will bend under terrific impact but can be straightened without long interruption to operations. Condensate from steam maintains level of bath so it is not necessary to add cold water. Tanks protected from damage as jets cannot get out of place. Design provides for practical elimination of steam hammer contributing to life of tanks, valves and piping.

**Description** — Jets may be placed in

**AVAILABLE Now**



Illustration shows  
our Special Shal-  
low type, with  
Tubular legs.

**GROEN SOLID STAINLESS STEEL Steam Jacketed Kettles!** In limited quantities. ONLY A FEW UNTIL V-J DAY! Requirements for Stainless Steel for important war orders remain high. However, you may obtain the GROEN SOLID STAINLESS STEEL Steam Jacketed Kettle, WITHOUT PRIORITIES, if you contact us AT ONCE. Recent removal of restrictions permits A LIMITED QUANTITY when materials are available. This applies to all the famous GROEN models including Tilting Type, Mixer Type, Deep Type, Shallow Type and specially built kettles. Ask for fully illustrated KETTLE BOOK and make selections from this complete and incomparable line. Write GROEN MFG. CO., 4535 W. Armitage Ave., Chicago 39, Ill.

**FOR VICTORY  
Buy  
War  
Bonds**

**WHEN BETTER METALS ARE MADE  
GROEN WILL USE THEM**

**half a century of fine kettles**

When Inquiring specify CP A2425 — see information request blank, pgs. 2-3

## HENDRICK MITCO ARMORGRIDS



### Built to Take the Toughest Loads!

Reinforced with Hendrick Mitco Armorgrids, no floor or platform has ever required replacement. Imbedded in concrete, cement, asphalt, composition, mastic or other plastic materials, Mitco Armorgrids are flush with floor, and so absorb the brunt of shocks, grinding loads and continuous hard usage. Completely fabricated panels are easy and most economical to install. No assembly work required! Write for full data on Hendrick Mitco Products.

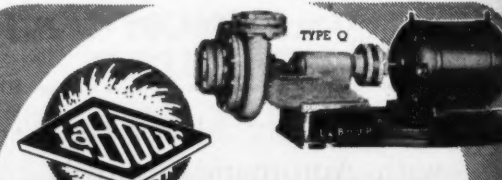
### HENDRICK MANUFACTURING COMPANY

**Carbondale, Penna.**

**30 CHURCH STREET, NEW YORK CITY**  
Sales Offices in Principal Cities

Also manufacturers of Perforated Metal Screens, Perforated Metal Grilles,  
Light and Heavy Steel Plate Construction

When Inquiring specify CP A2426 — see information request blank, pgs. 2-3



**CENTRIFUGAL PUMPS**

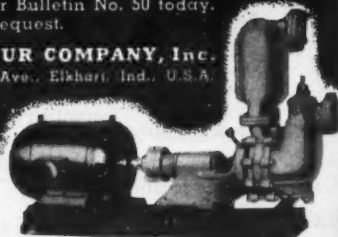
## For TOP EFFICIENCY in Handling Acids, Caustics, etc.

Both self-priming and non-priming LaBour Centrifugal pumps use open impellers with generous clearances. Despite this construction, LaBour pumps repeatedly demonstrate in actual service that they pump more liquid at less cost for power, over a period of time, than pumps whose original close fits are soon lost in service.

For details on these pumps that move liquids at lower costs per gallon, write for Bulletin No. 50 today. It's free on request.

**THE LABOUR COMPANY, Inc.**  
1571 Sterling Ave., Elkhart, Ind., U.S.A.

TYPE DFL



When Inquiring specify CP A2427 — see information request blank, pgs. 2-3



## PRODUCTION

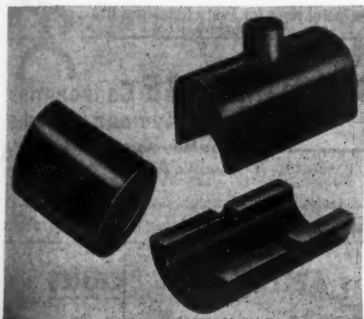
in the center or through-the-wall-insulation may be had if desired. The velocity of air, liquid, or steam increases as it passes through the special nozzle and expands into the bell shaped housing of the jet. This action sucks solution from the tank through the back of the jet so that solution in all parts of the tank is agitated and circulated. It can be used on any line that has 10 lbs. of pressure or more. The jet is primarily designed for sulphuric and pickling acid solutions. For special applications jets are available in stainless, steel, nickel, Inconel or any weldable material.

YOUNGSTOWN WELDING & ENGINEERING CO.,  
Dept. CP, Youngstown, Ohio.

When inquiring specify CP A2428 — see information request blank, pgs. 2-3

## Self-Lubricating Bearings for Wet-Dry, Corrosion Proof Service

Use includes components in process equipment, mechanical, electrical, metallurgical applications



**Uses** — For self-lubricating bearing requirements in such processing equipment as enameling and bakery ovens, annealing and heat treating furnaces, fibreboard manufacturing equipment, molten metal conveyors, steam equipment in curing processes, dye tanks

BEARINGS for service at — 0° to 850° F

and vats, liquid and gas pumps, paaper and steel mill equipment and industrial washing machines, fans and blowers. For wet or dry operations and those involving exposure to acids, fumes and gasses.

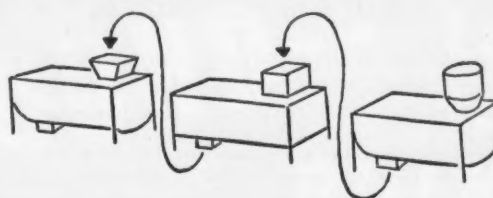
**Features** — Low coefficient of friction, high degree of heat resistance; low coefficient of expansion; chemically inert grades available with controlled physical qualities and with or without metal content.

**Description** — These bearings embody the principle of self-lubrication through the use of graphite. Some dozen different grades in plain carbon and graphite compose this group, each of which is designed for particular requirements. These various grades operate at in ambient temperatures ranging from sub-zero to 850° F. The material — "Morganite" — is readily machinable. Available in complex sleeve or split types, the bearings can be press-fit, shrunk-fit or mechanically fitted to shaft or housings. Bulletin on request.

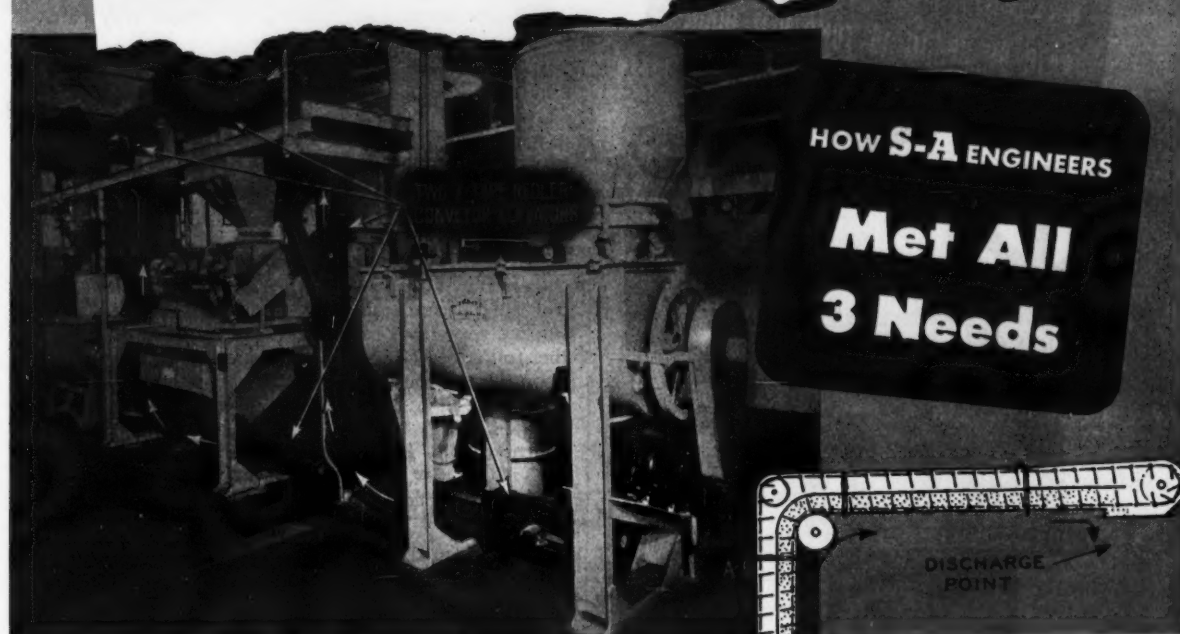
MORGANITE BRUSH CO., Dept. CP, Long Island City 1, N. Y.

When inquiring specify CP A2429 — see information request blank, pgs. 2-3

For complete information regarding products described in this issue a handy request slip is provided between pages 2 and 3. Check the items that interest you, fill in name and address and send it to publishers. Information will come to you promptly.



*The Problem —*  
*convey and elevate*  
*costly bulk chemical;*  
① *without loss as dust,*  
② *without contamination*  
*by dust or moisture,*  
③ *in rather close quarters.*



HOW S-A ENGINEERS

**Met All  
3 Needs**

One REDLER takes powdered material from mixer to pulverizer. The second takes it to a weighing hopper above a second mixer.

This is a diagrammatic view of a Z-type REDLER System, of which two are used in this installation.



When a large manufacturer of chemical compounds installed a new production system, he put S-A Engineers to work on his raw material handling problem.

The result: installation of a system with two Z-shaped REDLER Conveyor-Elevators, moving material in uniform volumes through compact, sealed casings, without loss of costly chemicals as dust, and with full protection against the entrance of moisture or dirt.

This REDLER System, S-A Engineered and S-A built, is another noteworthy example of S-A's ability to solve mechanical handling problems.

# STEPHEN S-ADAMSON

11 RIDGEWAY AVENUE, AURORA, ILLINOIS MFG. CO. LOS ANGELES, CALIF. ★ BELLEVILLE, ONT.

*Designers and Manufacturers of All Types of*  
**BULK MATERIAL HANDLING EQUIPMENT**

When inquiring specify CP A2430 . . . see information request blank, pgs. 2-3

# Zenith

THE PULP PRESS THAT DEWATERS  
ANY PULP OR SLURRY AT THE  
RATE OF UP TO 15 TONS PER HOUR



If your manufacturing process requires the de-watering of any crystalline, granular or fibrous slurries, you will want to know more about the giant Zenith Pulp Press. This continuous press dewaters up to fifteen tons of pulp in one hour. Pressure is transmitted (see cut away view) by means of a slowly revolving spiral-bladed spindle. Because of its built-in heating system and design of its walls, draining is doubly efficient. For complete facts write today to:

JACKSON & CHURCH CO., SAGINAW, MICHIGAN

When inquiring specify CP A2431 — see information request blank, pgs. 2-3

## PRODUCTION

### Small Gas Cracker & Generator

Capable of producing any desired analysis of atmosphere gas; variable in output from 10 to 50 cubic feet per hour

**Uses** — This gas atmosphere producer has been produced to meet the requirements of laboratories and production plants working on condensed scales. The generator satisfies a need in many manufacturing plants conducting research on metals and experimental heat treating as well as in the production plants turning out special alloy parts or powdered metal parts.

**Features** — The generator is universal in that it can be used as an exothermic gas generator, and endothermic gas cracker, or if desired as an ammonia dissociator. The generator is compact, all necessary parts are enclosed or mounted. It is mobile, the casing being mounted on silent casters. Variable capacity — 10-50 cubic feet per hour. Flexible connections for electrical, gas and water requirements. Low cost 1500 watts @ 220 volts.

**Description** — The unit is complete with gas mixing machine, catalyst furnace, retort gas cooling condenser, control valves, and automatic temperature controls. It is shipped ready for operation. Using natural gas (methane), the following typical analyses are produced depending upon the reaction used. Endothermic reaction: 18% CO, 34% H<sub>2</sub>, 46% N<sub>2</sub>, 1% CO<sub>2</sub> (Lean Ratio), 19% CO, 40% H<sub>2</sub>, 40% N<sub>2</sub>, 0% CO<sub>2</sub> (Rich Ratio). Exothermic Reaction 0.5% H<sub>2</sub>, 89% N<sub>2</sub>, 10% CO<sub>2</sub> (Lean Mixture), 10% CO<sub>2</sub>, 15% H<sub>2</sub>, 70% N<sub>2</sub>, 4% CO<sub>2</sub> (Rich Mixture). Using anhydrous ammonia the following analysis is pro-

There are many important advantages incorporated in MULTICLONE equipment for the recovery of dusts, fly ash and similar suspensions from industrial gases. It is simple to install, easy to maintain, gives high recovery efficiency... and is unusually compact! One reason for MULTICLONE compactness is the unique design of the collector tubes. The patented vane which whirls the gases in each tube permits compacting many tubes into an extremely small space, eliminating need for the space-wasting ducts and complicated manifold of conventional cyclones...

One COMMON INLET HEADER  
IN THE MULTICLONE  
SAVES SPACE, SAVES MONEY!

**MULTICLONE DESIGN**  
✓ Simple "straight-through" duct work!  
✓ Saves space and is easier to install!  
✓ More adaptable to space restrictions!

**CONVENTIONAL DESIGN**  
✓ Side-entry means complicated duct work!  
✓ Wastes space and is costly to install!  
✓ Not easily adapted to space limitations!



GET ALL THE  
FACTS on the  
many MULTI-  
CLONE savings.  
Send for this  
booklet.

**WESTERN  
Precipitation  
CORPORATION**  
ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR  
COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS  
Main Office: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA  
CHRYSLER BLDG., NEW YORK 17 • 140 S. DEARBORN ST., CHICAGO 3  
HOBART BUILDING • SAN FRANCISCO 4, CALIFORNIA  
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring specify CP A2432 — see information request blank, pgs. 2-3



Vibrating machines give rigid connections the "shakes." The result — costly fatigue failure. Durable, easy-to-install REX-WELD flexible metal hose can take the "shakes." It safely absorbs vibration — minimizes breakdown hazards.

Pressure-tight, corrosion-resistant REX-WELD efficiently handles steam, gases and many types of searching fluids. It withstands temperatures to 1000° F. and burst pressures to 11,000 p.s.i. — depending on size. Sizes range from 3/8" to 12" I.D. (incl.). Write for information about how REX-WELD can solve your flexible metal hose problems. Ask for Booklet E-144.



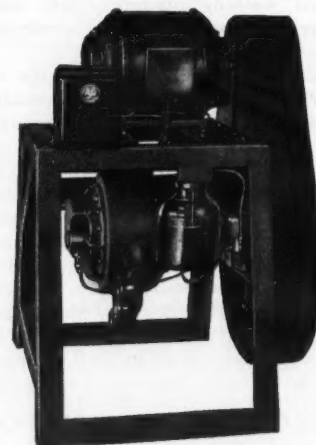
Flexible Metal Hose for Every Industrial Use

**CHICAGO METAL HOSE CORPORATION**  
MAYWOOD, ILLINOIS  
Plants: Maywood and Elgin, Ill.

When inquiring specify CP A2433 — see information request blank, pgs. 2-3

## ROTARY LAMMERT QUIET VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



Investigate!  
MODEL SWMF.

**NEW!**  
Continuous  
Self  
Purging  
Principle

Expels the  
Contaminating  
Influence!

ENDURING HIGH VACUUM PERFORMANCE

LAMMERT & MANN CO.

215-21 N. WOOD ST. CHICAGO 12, ILL.

A HALF CENTURY OF SERVICE  
TO SCIENCE AND INDUSTRY

When inquiring specify CP A2434 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## PRODUCTION

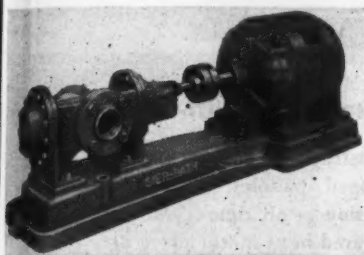
duced: 75% H<sub>2</sub>, 25% N<sub>2</sub>, (Residual Ammonia .05%).  
Larger units are also made in sizes up to and including 1000 cfm output.

ASSOCIATED INDUSTRIAL ENGINEERS, INC., Dept. CP, 1505 Race St., Philadelphia 2, Pa.

When inquiring specify CP A2435 — see information request blank, pgs. 2-3

## Screw Displacement Pump Handles Thick Fluids Without Pulsation

*Easy maintenance; internal gear types require only occasional packing ring renewal*



HEAVY DUTY DISPLACEMENT PUMP

**Uses** — Especially suited for heavy duty pumping and is used for handling thick liquids of both the lubricating type such as asphalt, greases, soaps, syrups.

**Features** —

There is no pulsation or vibration in the flow from this pump. (It can be used advantageously in handling Bunker C fuel oil in burner operation.) This feature prevents frequent loosening of piping that occurs from the impact of a pulsating flow.

**Description** — This is a displacement pump of the screw type. The internal gear types require only an occasional packing ring renewal which can be made while the pump is in service. The self-centering Herringbone timing gears prevent sidewear of screws resulting from contact while pumping. The end to center flow of fluid in the horizontally mounted units eliminates thrust bearings.

SIER-BATH GEAR CO., Dept. CP, 9252 Hudson Blvd., North Bergen, N. J.

When inquiring specify CP A2436 — see information request blank, pgs. 2-3

## Expellers for Medium & Large Capacity Mills

Twenty-page illustrated catalog deals in a highly practical manner with "Duo" expellers that make them unusually efficient in producing low oil content, high quality cake and quality oil in plants of medium capacity. The "Duo" expeller is described as the smallest expeller having both vertical and horizontal pressing barrels, therefore offering the advantage of double pressing found in large capacity units. This "Duo" expeller is easily maintained, has a simplified driving mechanism. Points of importance in connection with operation of these expellers such as conditioning vessels, tempering apparatus, rotary steam dryers, rotary cake coolers, oil cooling systems are discussed. For handy reference there is a tabulation of capacity and results in connection with the use of the expeller with such materials as castor beans, cottonseed, peanut kernels, soy beans and others. Another catalog gives equally detailed treatment in presenting features of twin-motor expellers for maximum capacity. In these the interaction of two motors and the uniform maximum load thus maintained in the barrels, makes it possible to employ more nearly universal arrangement on the various materials. This makes an "all purpose" expeller able to efficiently press several different raw materials with the same worm arrangement.

V. D. ANDERSON CO., Dept CP, 1935 W. 95th St., Cleveland, Ohio.

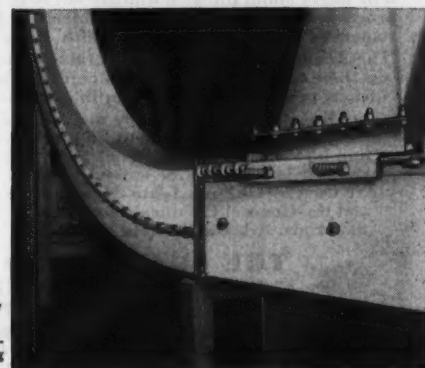
When inquiring specify CP A2437 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

# FOUND -- a Simple Low-cost Way to Handle BULK MATERIALS



Left: Close-up showing automatic control applied to Bulk-Flo loading point.



Right: Bulk-Flo feed section, showing adjusting plates.

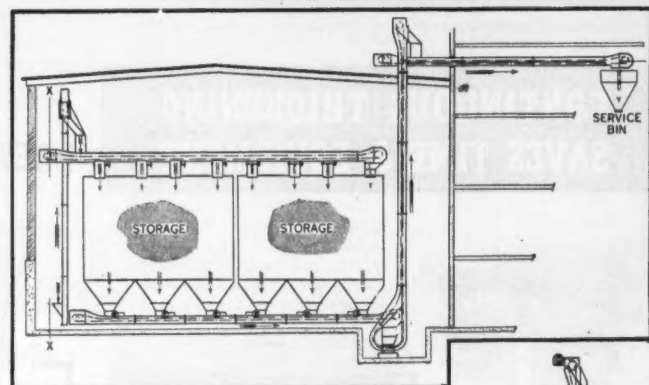
• Link-Belt Bulk-Flo . . . the single-unit, self-feeding, self-discharging elevator-conveyor-feeder . . . is built to handle almost any job of moving flowable, granular, crushed, ground or pulverized materials of a noncorrosive, non-abrasive nature under any loading conditions.

It requires little space and practically no maintenance; it is dust-tight; its split discharge construction assures a minimum of breakage or degradation, making Bulk-Flo ideal for materials requiring careful handling. Bulk-Flo cuts handling costs by removing the limitations of other methods.

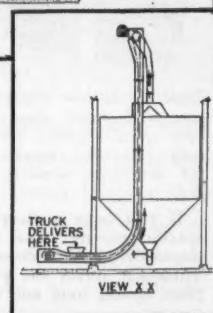
Submit your bulk materials handling problems to us in full confidence. Write for Bulk-Flo Book No. 2075.

## LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.  
Offices in Principal cities.



Sketches above and right show Bulk-Flo installation in a sugar pulverizing plant. Thirty tons of granulated sugar per hour are handled from trucks to storage bins by vertical and horizontal Bulk-Flo units. Three other Bulk-Flo units with automatic controls transfer the sugar from storage bins to a service hopper at 7½ tons per hour.



**LINK-BELT**  
*Bulk-Flo*  
**ELEVATOR-CONVEYOR-FEEDER**

When inquiring specify CP A2438 . . . see information request blank, pgs. 2-3

**PAYLOADERS  
REPLACE  
MISSING  
MANPOWER**



Why worry about the men who are not to be had? In many process plants, the manpower problem for handling bulk materials has been eliminated with Hough Payloaders. These compact, readily-maneuverable units speedily pick up their loads, hoist them and carry them to nearby or distant points and dump them into trucks, bins or pits. The Model "HA" Payloader, pictured, will load, carry 100' and dump at the rate of 25 tons or more per hour. Note how easily this unit goes in and out of box cars, where it is a great time saver. Numbers of Payloaders are used by DuPont, Johns-Manville, Virginia-Carolina and the General Chemical Company for handling bulk materials. Ask for Bulletin 149.

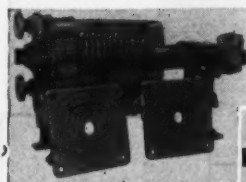


**THE FRANK G. HOUGH CO.**  
Libertyville, Illinois  
"Since 1920"

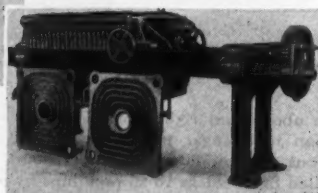
**HOUGH Payloader SHOVELS**

When Inquiring specify CP A2439 — see information request blank, pgs. 2-3

## CONTINUOUS THICKENING SAVES TIME & EQUIPMENT



Left — Shriver Thickener with rubber covered metal plates; can be used in parallel or series parallel chamber arrangements.



Right — Shriver Thickener with metal plates; note spiral channels for long flow in chamber for maximum dewatering.

If you have a slurry with a suspension of solids of a specific gravity close to that of the liquid — and consequently get a slow settling rate, the Shriver Continuous Thickener offers the possibility of considerable savings in plant space, time and quantity of material required in the process.

Its increased rate of thickening, washing or leaching, by continuous recirculation of the slurry, — its compactness and low first cost, and its convenient tie-in with other processes, make it worth your investigating this new but well proved equipment. The Shriver laboratory is available — gratis — for test runs on your material. Write to T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.

**SHRIVER Continuous THICKENER**

When Inquiring specify CP A2440 — see information request blank, pgs. 2-3

## PRODUCTION

### Relief Valve Diaphragm Seals Against Leakage

*Very suitable for service where fluid is constantly on downstream side*



Valve opens by pressure on diaphragm

Uses — In refineries, chemical, power and industrial plants. Designed and used for marine services such as salt water lines and equipment, and with special construction for lube oil lines, these relief valves are adapted for many industrial operations. The diaphragm acts in several capacities. The diaphragm seals the valve from leakage encountered around the stem in the conventional design. Therefore it is highly acceptable for relief service where there is fluid constantly in the downstream side.

Features — The valve will open to the full relieving capacity at 20% over-pressure rather than the approximate 35% in the conventional type valve which depends on pressure under the disc to lift the disc. This valve (Type 1000) opens as a result of pressure on the diaphragm and, since its area is much greater than the disc, the force is many times multiplied.

Description — The valve is particularly applicable where the relief valve is to be used as a control valve — for controlling the pressure at the relieving point, rather than the use of a reducing valve. One of the many advantages

## PREVENTS ACCIDENTS and SPLASHING!



### SAFEGUARDS EMPLOYEES!



#### MADE IN 3 SIZES

5 Gallon Size (1 1/4" to 2 1/4")  
Standard Size (2 3/4" to 3") 10 to 13 Gallon  
Large Size (3 3/4" to 3 1/2") Special Neck.  
These dimensions are outside diameters.

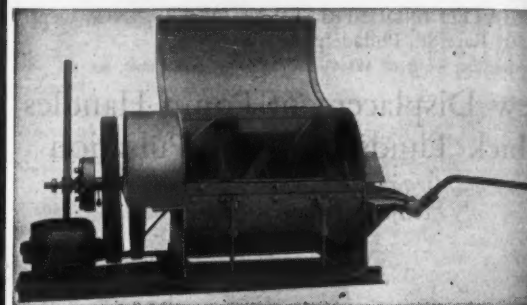
Send for literature "CEP"

**WAHLERT PRODUCTS CORP**  
INDUSTRIAL SAFETY AND FIRE EQUIPMENT  
27 LAFAYETTE ST., BROOKLYN, N. Y.

When Inquiring specify CP A2441 — see information request blank, pgs. 2-3

## Need Mixers?

**We Can Fill Your Requirements**



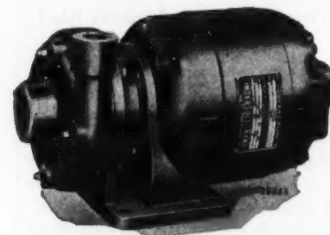
### Investigate the Multi-Mixer

Sturdy construction. Dust proof. Multi-arranged paddles. All material in action at all times. Motor drive or geared head motor drive or tailor made to fit your requirements. Write for further information.

**The Multiplex Concrete Machinery Co.**  
Elmore, Ohio

When Inquiring specify CP A2442 — see information request blank, pgs. 2-3

## CIRCULATING PUMPS



### THE CLASS KRVS MOTORPUMP

Pressures 5 to 35 lbs. — Heads 10 to 100 ft.

Capacities 5 to 125 gpm — Sizes 3/4, 1 and 1 1/2 inches

### MOTORPUMP

The Ingersoll-Rand Class KRVS Motorpumps are single-stage, single-suction centrifugal units with built-in

electric motor. They are suitable for many applications in food, beverage, and dairy product plants... air conditioning systems... on machine tools... as integral parts of washing, cleaning, dairy, bakery and water conditioning machinery.

Motorpumps do not require a special foundation and can be mounted vertically, horizontally, at an angle or on the side.

Call your nearest I-R branch office or your local I-R distributor for complete details.

**Ingersoll-Rand**  
9-660 11 BROADWAY, NEW YORK 4, N. Y.

When Inquiring specify CP A2443 — see information request blank, pgs. 2-3



## PRODUCTION

is that this valve will close at the set pressure, as compared with the disc type valve which goes below the set pressure by about 15% before the spring recovers from its momentary hysteresis and closes. Bulletin giving complete details on request.

FARRIS ENGINEERING CO., Dept. CP, 345 Commercial Ave., Palisades Park, N. J.

When inquiring specify CP A2444 — see information request blank, pgs. 2-3

### Non-Sparking Aluminum Stool

For powder plants and similar hazardous areas; other aluminum stools in range of sizes



Non-sparking-weight 2½ lbs.

**Uses** — These aluminum stools provide rust and corrosion proof service in chemical plants, distilleries, breweries, dairies and in various applications where their sanitary property is essential.

**Features** — The stool illustrated which is of non-sparking design is especially serviceable in hazardous areas such as those in plants making explosive and com-

bustible products. Castings on bottom of legs are brazed to make ground connection, so that no static electricity can develop.

**Description** — The stool illustrated is No. 18 — 13" diameter, 18" high — weight 2½ lbs. A selection of aluminum stools is offered in a wide range of sizes. Complete information on request.

ALUMINUM LADDER CO., Dept. CP, Worthington, Pa.

When inquiring specify CP A2445 — see information request blank, pgs. 2-3

### Gas Analysis Apparatus Includes Equipment for Most All Methods

Available in build-up and cabinet models

**Uses** — Gas analysis — handling simple or complex mixtures.

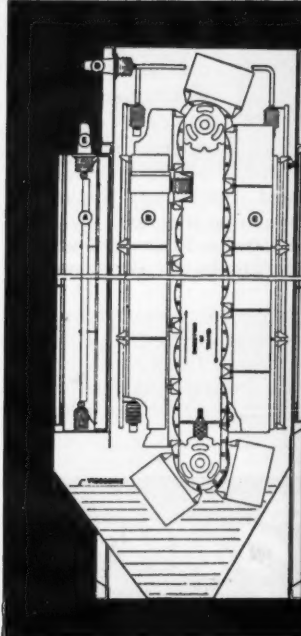
**Features** — Because the necessary equipment for all the commonly used methods is incorporated, the analyst may select those methods best suited to the sample. Flexible, accurate, convenient apparatus for laboratory service.

**Description** — Standard equipment supplied for either build-up or cabinet model: Four Auto-Bubbler pipettes, one contact pipette, gas measuring burette, laboratory type, copper oxide assembly, catalytic assembly, gas burette reader. All accessories required (except solutions and mercury) to complete the apparatus are supplied. Available for 115 v. AC or DC.

BURRELL TECHNICAL SUPPLY CO., Dept. CP, 1936 5th Ave., Pittsburgh, Pa.

When inquiring specify CP A2446 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



**THE "LAST WORD" IN AIR FILTERS** is the self-cleaning Electro-Matic, which is also outstanding because of the effectiveness with which it applies the principles of electronic precipitation. Dust laden air enters the ionizing unit (A) where all dust particles receive a positive charge. Then it passes through the continuous, belt-type filter curtain where, both at the front (B) and the back (C), dust particles are attracted to negative charged, oil coated filter plates. Plates are cleaned and re-oiled continuously as they pass through the oil bath in the base.

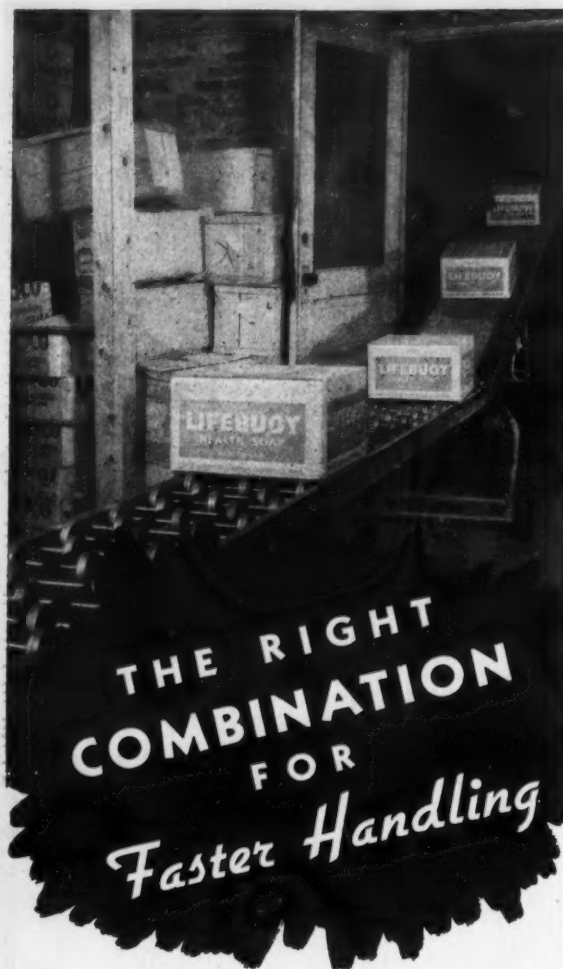
### THE ELECTRO-MATIC STOPS THE FINEST DUSTS, SMOKE, FUMES and oil vapors.

Particles so small they can be seen only with the new electronic microscope, are removed by the AAF Electro-Matic Air Filter. The Electro-Matic removes 85% of these fractional micron sized particles, providing super clean air. In addition to its high efficiency the Electro-Matic can operate continuously at maximum efficiency because it is self-cleaning, which avoids the need for stopping the filter to clean collector plates. Where really clean air is needed to meet production requirements or to give employees the very best of working conditions . . . the Electro-Matic is the answer. Write for Bulletin No. 250-C.

AMERICAN AIR FILTER COMPANY, INC., 106 Central Avenue, Louisville 8, Kentucky. In Canada: Darling Bros., Ltd., Montreal, P. Q.



When inquiring specify CP A2447 . . . see information request blank, pgs. 2-3



Your requirements for faster handling of packaged materials can be met with the right combination . . . Rapid-Wheel Portable Gravity Conveyor and the Stevedore, Jr.

Each section of Rapid-Wheel Conveyor is a self-contained unit, adjustable from a minimum 6" to a maximum 50" operating height. . . . (Cam-Lock standards — same as used on Stevedore, Jr.) Sections are easily coupled together with self-locking coupler. Reversible curve sections and adjustable guard rails are standard accessories.

Rapid-Wheel Gravity Conveyor furnishes the power down-grade, while the Stevedore, Jr. Power-Belt Conveyor saves man-hour-handling time in loading, unloading, stacking and elevating operations. Quick-acting "Cam-Lock" standards on the Stevedore, Jr. provide a range of adjustments to meet varied operating conditions — from 18" level to delivery height of 72". The Stevedore, Jr. plugs in standard 110 volt lighting circuit and lifts a 225-pound distributed load at the rate of 50' per minute.

Write us about your handling problems and get facts on how you can save time and money.



Manufacturers of  
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

*The Rapids-Standard Co., Inc.*

Sales Div., 350 Peoples Nat'l Bk. Bldg., Grand Rapids 2, Mich.

When Inquiring specify CP A2448 — see information request blank, pgs. 2-3

## PRODUCTION

### Timing Contactor for Testing Solenoids and Relays

*In addition to testing electrically operated mechanisms it can also be used where set of contacts are to be opened and closed regularly*



Portable Timing Contactor

**Uses** — For testing electrically operated mechanisms such as solenoids, relays, etc., particularly where breakdown test is desired. It can also be used where a set of contacts are to be opened and closed regularly.

**Features** — It can be operated continuously for an indefinite period of time. It requires no attention. By using discs with various numbers of cams, and motors of various speeds, the number of makes and breaks per minute is practically unlimited.

**Description** — This timing contactor consists of a synchronous motor, available in various speeds, and two micro switches operated by a cam disc fastened to the motor shaft. Terminals are provided for easy wire connections, and two switches are standard equipment so that two tests



One man, with an S-A Box Car Loader, can make quick work of loading and trimming a box car. The loader operates without attention after it is placed in the car, and flow of material is started. This handy machine automatically loads and trims in a fraction of the time required by hand methods. Exposure of operator to dust is reduced to the minimum. Save time and manpower with this standard S-A portable loader. . . . It handles loose granular material up to 2-inch lump size.

Write for Bulletin No. 240 and full details.

**STEPHENS-ADAMSON**

TELLEVEL—Bin Level Controls  
Car Loaders  
Variable Speed Reducers  
MFG. CO.  
Car Pullers  
Saco Speed Reducers  
SealMaster Ball Bearings  
Winches

11 RIDGEWAY AVE., AURORA, ILLINOIS

When Inquiring specify CP A2449 — see information request blank, pgs. 2-3

## "NATIONAL" CHEMICAL DRYERS

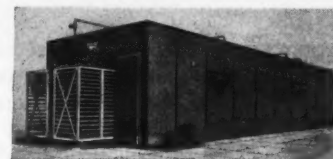
**Fast . . . Accurate . . . Economical**



**Truck Type Tray Dryer**  
For batch drying of various chemicals in moderate quantities. May accommodate one or more trucks having any desired number of trays.

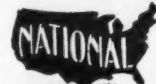


**Single Conveyor Dryer**  
For handling large quantities of chemicals and other materials, including high abrasives. Continuous hopper feed; automatic material leveler; pressure extraction and heating for pre-drying.



**Semi-Continuous Tunnel Type Truck Dryer**  
For quantity production of filter pressed chemicals and minerals in batch or sludge form. Send for Illustrated Folders

Chemical Dryers  
of All Types  
and Sizes



**Below:**  
"NATIONAL"  
Test Dryer  
Convection type. For experimental and small production drying.



Special Drying  
and Heating  
Equipment

**THE NATIONAL DRYING MACHINERY CO.**  
2709 N. HANCOCK STREET • PHILADELPHIA 33, PA.

When Inquiring specify CP A2450 — see information request blank, pgs. 2-3

## An Investment in Sound Practice FILTRATION

### SPARKLER Horizontal Plate METHOD

The test of any filter is the efficiency and speed with which it takes turbid, cloudy liquids and delivers them pure, clean and transparent — AT LOW COST.

Sparkler Filters are designed to give superb filtering for both light and heavy chemicals and fluids of all kinds regardless of viscosity.

Sparklers remove all foreign substances and give a brilliance to the filtrate that is unbelievable when the unfiltered and filtered product are compared.



Consult Sparkler on your filtration problems. Our field engineer will call on request — no obligation. . . .

**SPARKLER MFG. CO.**  
244 Lake Street  
MUNDELEIN ILLINOIS

When Inquiring specify CP A2451 — see information request blank, pgs. 2-3



## PRODUCTION

can be run at same time. The counter for short runs is optional. The unit is portable and may be plugged in anywhere. It has no tubes, and no intermediate contactors are necessary. All items are mounted on a steel back plate and come enclosed in a 9 x 12 x 4 inch sheet metal case finished in black wrinkle enamel.

B/W CONTROLLER CORP., Dept. CP, Birmingham, Mich.

When inquiring specify CP A2452 — see information request blank, pgs. 2-3

## Limits Bridge Tests Resistors, Rheostats, Motor Windings

For high speed sorting; adapted to volume testing of resistance values up to 2000 pieces per hr.

**Uses** — For rapid comparison of large quantities of resistors having comparable values. Very well adapted to volume testing of resistance values up to 2000 pieces an hour, particularly for testing motor windings, transformer primaries, or secondaries, rheostats, potentiometers, lamps, shunts or multiple resistors, or any item that offers ohmic resistance to flow current.

**Features** — Extreme flexibility through use of an external reference standard is one of the outstanding features of this instrument. A combination test fixture and automatic control switch adds to this characteristic; also binding posts at the right side of the unit for connection to user's test fixture where desired. Left hand binding posts are for connection of reference standard which can be supplied if desired.

**Description** — This "Model 81" Limits Bridge is battery operated. The overall adjustable range is from  $\frac{1}{4}$  ohm to 10,000 ohms, with adjustable ratio arm, sensitivity control, production type test fixture with automatic on-off switch. The sensitivity control range is from plus-minus  $\frac{1}{4}\%$  to plus-minus 10%. The indicator is a sensitive zero center galvanometer. The unit, self-contained, measures 8 x 8 x 12 inches. Weight is 18 pounds. Mounted in an attractive gray, wrinkle finished metal cabinet. On a sloping panel are mounted the ratio arm control, galvanometer, binding posts and combination test fixture. Further details will be sent on request.

ASSOCIATED RESEARCH, INC., Dept. CP, 231 South Green St., Chicago 7, Ill.

When inquiring specify CP A2453 — see information request blank, pgs. 2-3

## Tester for Foundry Sand, Cores and Coating Materials Aids in Casting Improvement

Four page bulletin describes the "Dilatometer", which makes possible the visual as well as the physical testing of molding materials. This is accomplished at temperatures and conditions prevailing in the mold at the time the metal is poured. The Dilatometer is equipped with a furnace having an operating range up to 3000 degrees F. Data obtained increases knowledge for a precise and definite casting improvement program. Loading operation requires no manual exertion. Loading table is connected to a 20 inch long enclosed hydraulic loading piston and cylinder assembly. Overall height is 60 inches and base dimensions 49 x 17 inches. Copies of bulletin on request.

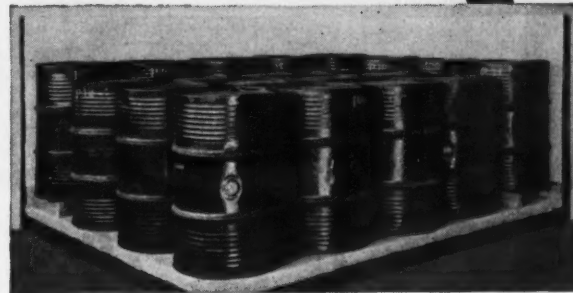
HARRY W. DIETERT CO., Dept. CP, 9330 Roselawn Ave., Detroit 4, Mich.

When inquiring specify CP A2454 — see information request blank, pgs. 2-3

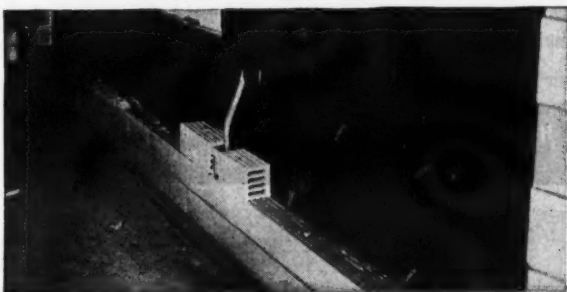
# The Versatile Insulation PC FOAMGLAS...



**EASILY HANDLED**—Light, rigid, strong, the big pieces of PC Foamglas are conveniently packaged, easily handled. They can be cut to fit around openings and obstructions right on the job. When you install PC Foamglas the first cost is the last cost.



**STANDS THE LOAD**—Under concrete wearing floors, PC Foamglas withstands pressure much greater than normal floor loads. It has proved able to maintain desired temperature levels over cold ramps and open loading platforms, to prevent heat travel from rooms below.



**STAYS IN PLACE**—In core walls, PC Foamglas becomes an integral part of the structure, can be tied in to brick, tile or other backing and facing. This rigid, cellular glass material does not pack down, slip, warp, or rot—it is damp-proof, verminproof, incombustible.



**INSULATES PERMANENTLY**—A firm, level base for roofing felt. PC Foamglas is so easily installed it speeds up the job. It insulates efficiently, protects roof slabs. Even a break in roofing felt entails no expensive repairs or replacement of PC Foamglas.

**O**N roofs, in floors and core walls, on tanks and other equipment, PC Foamglas has proved its efficiency in all sorts of plants where temperature and humidity levels must be maintained, condensation prevented.

Made of air-filled glass cells, PC Foamglas does not warp, check, swell, shrink or rot. It is impervious to moisture, vapor, fumes and acid atmospheres, elements that cause other materials to lose insulating efficiency. Freedom from repairs and maintenance makes its use a positive

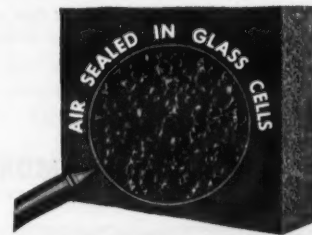
economy. Owners of all sorts of plants all over the country can tell you that PC Foamglas has licked many a tough insulating job—permanently.

Our specialists will be glad to consult with you on any problem that involves insulation. Also you will find a wealth of helpful information in the booklets we offer. Check the convenient coupon, mail it in today and your selection of literature will be sent to you promptly. Pittsburgh Corning Corporation, 632 Duquesne Way, Pittsburgh 22, Pa.

• Also makers of PC Glass Blocks •

**PC FOAMGLAS** *Waterproof Fireproof* **INSULATION**

T.M. REG. U.S. PAT. OFF.



Pittsburgh Corning Corporation  
Room 635, 632 Duquesne Way  
Pittsburgh 22, Pa.

Dear Sirs:

Please send along my free copies of the booklets I have checked. It is understood that I incur no obligation.

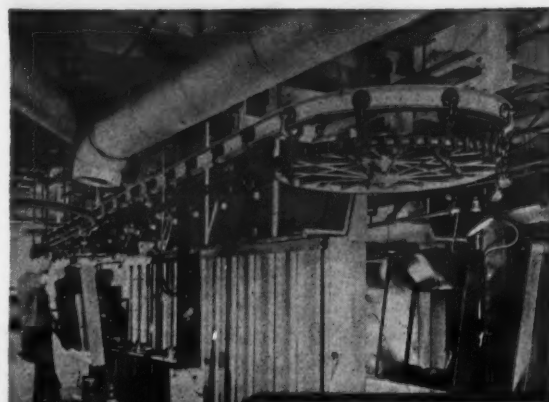
Roofs..... Walls..... Floors.....

Name.....

Address.....

City..... State.....

When inquiring specify CP A2455 . . . see information request blank, pgs. 2-3



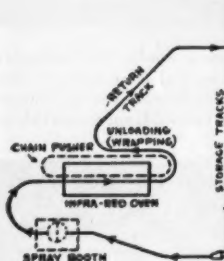
Pusher feeds sprayed parts through oven on monorail to wrapper

**AMERICAN MONORAIL**  
with Infra-Red Ovens

**CUTS BAKING  
TIME 70%**

**\$1925.00**

**SYSTEM CARRIES PARTS  
FROM WELDERS THROUGH  
STORAGE, SPRAY AND  
OVENS TO WRAPPER**



A well known furnace manufacturer has eliminated the bottle-neck in their enameling section with the use of infra-red drying and American MonoRail Overhead Handling System. Where casing sections would pile up in the spray booth, often requiring over 30 minutes—it now takes only 8½ minutes to bake the finishes.

American MonoRail synchronizes all pre-baking operations with baking time. The system extends from the sheet metal section through spraying, baking, wrapping and returns to fabricating and welding stations. A turntable in the track permits reversing of carriers holding the pieces so that operator may spray all sides without touching the sprayed surfaces.

Our engineers will gladly show you how your products can be carried at the lowest possible cost and the highest possible efficiency.

**THE AMERICAN MONORAIL CO.**

13109 ATHENS AVENUE CLEVELAND 7, OHIO



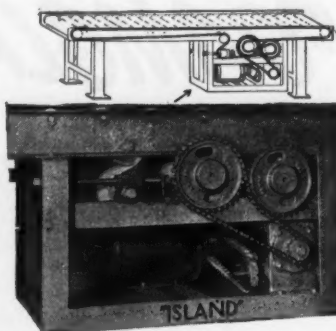
Special trolleys with hooks handle parts from welders to spray booth.

When inquiring specify CP A2456 — see information request blank, pgs. 2-3

## PRODUCTION

### Power Unit for Gravity Conveyors

*Self-contained assembly easily bolted to chassis*



Gravity conveyors motorized to carry upgrade

**Uses** — For motorizing ordinary gravity conveyors, permitting them to carry upgrade wherever such handling is required.

**Features** — This self-contained assembled unit, built solidly in an iron frame can be quickly and securely bolted to the chassis of any piece of conveying equipment that needs to be mechanically operated.

**Description** — The unit consists of motor, driving rolls, switch speed reducers (where wanted), controls, proper gears and all necessary mechanism to enable the user to make the proper connections to the equipment. The unit measures 15 x 24 x 17 inches — shipping weight 167 pounds. It has a highly efficient lubrication system, the main pillow block housings to which are attached the main

HANDLING + Processing + HANDLING + Assembling + HANDLING  
+ Packing + HANDLING + Storage + HANDLING



**New skills . . .** developed by today's modern handling methods, contribute to faster, smoother manufacturing as well as storage and shipping operations. These skills apply to *all* phases of handling in production and distribution. Write Towmotor Corp., Div. 7, 1226 E. 152nd Street, Cleveland 10, Ohio.

ASK FOR TOWMOTOR DATA FILE

**TOWMOTOR**

THE ONE-MAN-GANG

When inquiring specify CP A2457 — see information request blank, pgs. 2-3

### a Leader GAYCO Centrifugal Air Separator

The features embodied in the new model GAYCO Centrifugal Air Separator make them a leading means of increasing the capacity and efficiency of all types of grinding mills. They have quick, positive adjustment. When once adjusted they are not affected by variation in speed or rate of feed.

They require very little power to operate. And they feature the exclusive GAYCO principle of rejecting coarse particles by means of a centrifugal sifting fan. They separate 99% through 325 mesh, and give 35% to 30% greater recovery of fines.



**The Gayco Separator  
Handles**

**SUCH PRODUCTS AS**

BAGASSE	GROUND HAIR
CASEIN	GROUND OATS
COCOA POWDER	GUM ARABIC
COTTONSEED	SOY FLOUR
MEAL	SPICES
FERTILIZER	SUGAR

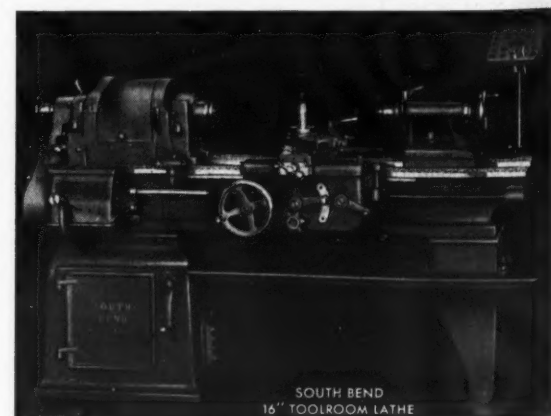
### Universal Road Machinery Co.

RUBERT M. GAY DIVISION, 117 Liberty St., New York 6, N. Y.  
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal  
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A2458 — see information request blank, pgs. 2-3

### Fine Accuracy FOR PRECISION JOBS

Throughout industry—where high precision and close tolerances are absolute "musts"—South Bend Lathes are consistently used. Their ability to handle fine, intricate work with minimum effort makes them dependable tools wherever precision machining is to be done. You can depend upon the efficiency, versatility and fine accuracy of these lathes. Toolroom and Engine Lathes made in 5 sizes: 9" to 16" swing. Two sizes of Precision Turret Lathes: ¾" and 1" collet capacity. Write for Catalog 100-D.



SOUTH BEND  
16" TOOLROOM LATHE

**SOUTH BEND LATHE WORKS**  
Lathe Builders For 38 Years  
439 E. MADISON ST. SOUTH BEND 22, INDIANA

When inquiring specify CP A2459 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW



## PRODUCTION

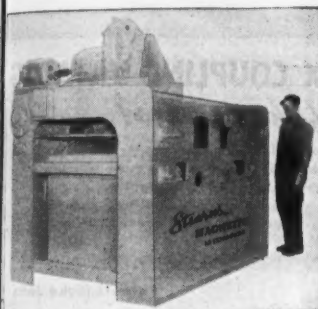
drive rollers, being of special construction provide for ample lubrication at all times. Complete information on "Power-Pac" units on request.

ISLAND EQUIPMENT CORP., Dept. CP, 101 Park Ave., New York 17, N. Y.

When inquiring specify CP A2460 — see information request blank, pgs. 2-3

### Magnetic Separator for Treating Free Flowing Materials

*Wet material treatment employs underfeed of slurry and changing position of magnet*



**Uses** — For treating free flowing materials for the elimination of impurities in the form of iron or iron bearing minerals of medium magnetic reluctance in one pass of the material.

**Description** — The separator employs twin drums enclosing powerful limited area magnets directly across the path of and as nearly in direct contact with the material as possible. The material is introduced by a simple split feed arrangement onto the revolving drums that carry away the magnetic impurities. In the treatment of wet material provision is made for an underfeed of the slurry and by changing the position of the magnet within the rotating drum. These Type "DH" magnets are available in 12" to 24" diameter drums; the number of drums being determined by the material and separation desired.

Separates in one pass of material

STEARN'S MAGNETIC CO., Dept. CP, Milwaukee 4, Wis.

When inquiring specify CP A2461 — see information request blank, pgs. 2-3

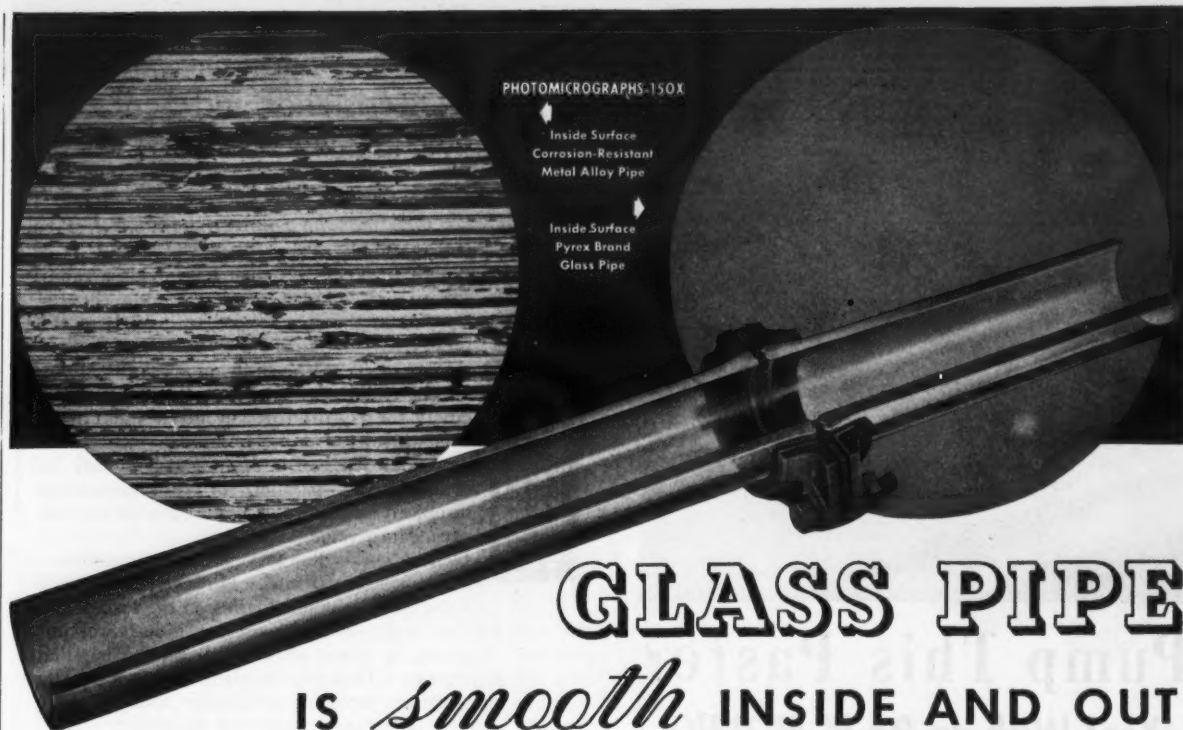
### Automatic Insect Control System

An ingenious automatic insect control system is described in a four page bulletin which emphasizes such outstanding features as its safety — no fire hazards; toxic only to insect life; accessibility of parts and ease of installation. This "Arrowside System" consists of a simple mechanical unit that converts liquid insecticide into a dry, heavier than air gas. It applies the gas through a simple, inconspicuous system of small galvanized pipe to handling and storage equipment such as may be used in connection with flour, etc. The electrical timing mechanism can be set to control the unit so that it will start at any time of the day or night desired, run for a pre-determined time and then shut off the unit. The chemical from which the gas is made is produced from a time-tested and proven formula and is safe enough in which to wash one's hands without injury. Prolonged breathing of the gas is to be avoided, of course. There are hose and spray gun attachments for treating infested areas. The entire unit is enclosed in a handsome pressed steel cabinet. One unit can handle up to 24 gas outlets. Approximate size of the cabinet is 36 x 28 x 18 inches.

ARROW ENG'G & CHEMICAL CO., Dept. CP, Mott Foundation Bldg., Flint, Mich.

When inquiring specify CP A2462 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



PHOTOMICROGRAPHS-150X

Inside Surface  
Corrosion-Resistant  
Metal Alloy Pipe

Inside Surface  
Pyrex Brand  
Glass Pipe

## GLASS PIPE

IS *smooth* INSIDE AND OUT

COMPARE the unretouched photomicrographs above. They tell the story . . . the important story . . . of the relative surface smoothness of PYREX Pipe as compared to corrosion resistant metal alloy pipe. And, PYREX Brand Glass Pipe stays smooth.

The hard, smooth surface of PYREX Pipe resists scratching and abrasion. Its high chemical resistance minimizes or eliminates pitting and scaling due to corrosion.

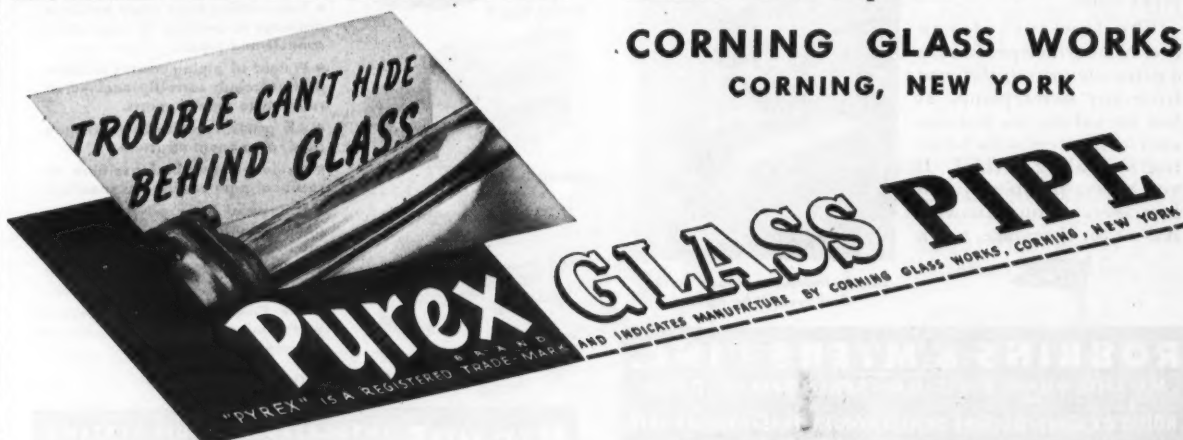
In your pipe lines, this smoothness is a feature that insures a smooth, even product flow throughout the service life of the pipe. Pipe line friction and turbulence are lessened. There

are no rough edges or deep crevices to catch and hold dirt or scale. Combined with the thermal resistance of PYREX Brand Glass, it makes cleaning easier and surer. Pipe lines can be flushed visibly clean in a few minutes time with steam or hot water.

In addition, because of the transparency of PYREX Pipe, you can easily check for these conditions at any time or at any stage of processing.

For more information on any of these features of PYREX Pipe or on its application in your processing operations, write today to the Industrial Sales Department CP-7.

**CORNING GLASS WORKS**  
CORNING, NEW YORK



When inquiring specify CP A2463 . . . see information request blank, pgs. 2-3



## Pump This Paste? Yes! With an R & M MOYNO



Here's another "first" for the R & M Moyno pump. It's heavy, highly viscous "flash cream" used by both Army and Navy to protect skin from flash burns in combat.

When West Disinfecting Company of Long Island City, N. Y., cooperating with the Naval Medical Research Institute, developed and began to manufacture flash cream, its *quick-setting* characteristics seemed to eliminate all possibility of pumping. The finished compound was carried to tube-filling machines in buckets, *by hand*, but this method proved far too slow.

Here, certainly, was a pump application—if a pump could be found to do the job. So, because R & M Moyno pumps have so often demonstrated their ability to do the "impossible," a Moyno was selected for this difficult assignment. From the first it *performed perfectly*, delivering in a continuous flow, and with a *positive pressure* that always keeps pipes open.

The low-turbulence R & M Moyno operates on a principle *entirely different* from any other pump. It has no valves, no pistons; uses no portion of the housing as sealing surface. If you have a pumping problem, *here's your answer*. Ask us for literature, *today*.



This belt-driven Moyno pumps "flash cream" for fighters.

**ROBBINS & MYERS • INC.**  
MOYNO PUMP DIVISION • SPRINGFIELD, OHIO  
HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

When inquiring specify CP A2464 — see information request blank, pgs. 2-3

## PRODUCTION

### Parallel Resistance and Series Capacitance Calculator

*Indicates in one setting the numerous pairs of resistances which may be connected in parallel*



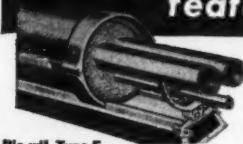
*Uses* — This new calculator is essentially a slide-rule device designed to provide a rapid and accurate means of determining the reciprocal of the sum of two reciprocals as expressed by the formula  $1/x, 1/a, 1/b$ . A single setting of the slide automatically aligns all the pairs of  $a$  and  $b$  values which will satisfy the equation of any given value of  $x$ . This calculator indicates in one setting the numerous pairs of resistances which may be connected in parallel, or capacitances in series, to provide any required resistance or capacitance value.

*Description* — Range 1 ohm to 10 megohms; 10 mmfd. to 10 mfd. However, the capacitance and resistance figures on the face of the rule can just as well serve to represent inductance, impedance, reactance, or other units which can be handled in a similar manner. Thus the calculator becomes equally valuable in solving problems involving inductance in parallel, coupled inductance, numerical magnitude of impedance, parallel reactance, etc.

ALLIED RADIO CORP., Dept. CP, 833 West Jackson Blvd., Chicago 7, Ill.

When inquiring specify CP A2465 — see information request blank, pgs. 2-3

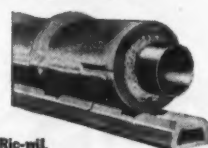
### When specifications call for TILE UNDERGROUND STEAM CONDUIT... consider these features of RIC-WIL



Ric-Wil Type F



Ric-Wil Universal



Ric-Wil Super Tile

• Only 3 pieces to handle for each two feet of system. Shipped full-round, scored for easy splitting at job site.

• Non-settling base drain provides drainage in addition to supporting conduit and pipes.

• Weight of piping carried on base drain through correctly engineered roller-type pipe supports.

• All parts interlock, making a rigid, permanent structure.

• Insulation may be loose fibre, or sectional pipe covering as specified.

• Universal Type with concrete pad available where required by ground conditions.

• Super Tile—heavy duty conduit available for heavy ground loads.

• Tile Conduit with diatomaceous earth lining available for oil or process liquid piping.

Write for descriptive Catalog No. 44

**RIC-WIL** INSULATED CONDUIT SYSTEMS  
THE RIC-WIL COMPANY • CLEVELAND, OHIO

When inquiring specify CP A2466 — see information request blank, pgs. 2-3



### THIS NEW AJAX COUPLING CATALOG *just off the presses!*

Every man who designs, builds, sells, operates, or maintains direct-connected machinery is invited to get a personal copy of this new catalog covering Ajax Flexible Couplings.

It gives latest working data on all types including Standard, Mill Motor (taper bore), Shear Pin, Bolt-on, Brake Drum and Detachable Hub Couplings.

Phone your nearest Ajax Flexible Coupling representative or write direct to

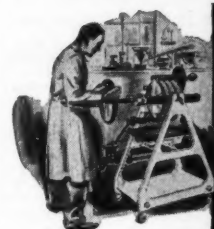
Patents Make Jobs

**AJAX FLEXIBLE COUPLING CO. INC.**

Incorporated 1920

WESTFIELD, N. Y.

When inquiring specify CP A2467 — see information request blank, pgs. 2-3



### THE ERTEL NEUTRAL ASBESTOS Filter Sheets

These sheets are free from ingredients that cause unfavorable reactions in the filtrate. Quality and appearance of your product will be improved with Ertel Sheets. Ten grades from coarse to ultra-fine.

#### FREE LABORATORY SERVICE

Ertel maintains a free laboratory service where liquids are tested, filtered and returned for your inspection. A sufficient quantity of Ertel sheets, grade determined by test, will be sent for a single set-up in your filter. You can then verify the superior results in your own plant.

**CATALOG** { The fully illustrated Ertel Catalog-12 describes the complete line of Ertel Liquid Handling Equipment. Send for a copy today; no obligation of course.

**ERTEL** ENGINEERING CORPORATION  
KINGSTON, NEW YORK  
NEW YORK CITY SALES OFFICE AND SHOWROOM  
100 WEST 40TH STREET • NEW YORK 18, N.Y.  
LIQUID HANDLING EQUIPMENT ENGINEERS

When inquiring specify CP A2468 — see information request blank, pgs. 2-3



**Now 40% GREATER DISCHARGE CAPACITY**

**IDEAL** Rechargeable  
Flashlight STORAGE BATTERY

**NOW IMPROVED!**

This increased discharge capacity means:—MUCH BRIGHTER, LONGER SUSTAINED LIGHT—smaller voltage drop assuring TOP LEVEL-LIGHT VOLUME—Even greater flashlight satisfaction than already experienced by MANY THOUSANDS OF USERS—can OUTLAST 400 or more DRY CELLS—saves up to \$10 on each flashlight. Fits standard flashlight case using 2 or more 1½" size D dry cells.

**GUARANTEED!**

IDEAL Battery Chargers in single, 6-gang and 12-gang types, plug into any light socket. Also rechargeable from automobile ignition line.

**PROMPT DELIVERY** Write for Bulletin BB 444



**IDEAL Sycamore**

Storage Battery Division  
**IDEAL COMMUTATOR DRESSER CO.**  
5137 Park Ave., Sycamore, Ill.  
Sales offices in all principal cities  
In Canada: Irving Smith Ltd., Montreal, Quebec

When inquiring specify CP A2460 — see information request blank, pgs. 2-3

**TEAM-MATES IN QUALITY**

**PURECO CARBONIC GAS**

Noted for its dependability, quality and uniformity. Please order only as necessary, returning all empty cylinders promptly.

"DRY-ICE", the versatile, economical refrigerant used in a host of ways in the processing of Chemicals and Pharmaceuticals.

**DRY-ICE**

**PURE CARBONIC, INCORPORATED**

General Offices: 60 E. 42nd St., New York 17, N. Y.

NATION-WIDE SERVICE — DISTRIBUTING STATIONS IN PRINCIPAL CITIES

When inquiring specify CP A2470 — see information request blank, pgs. 2-3

**PRODUCTION**

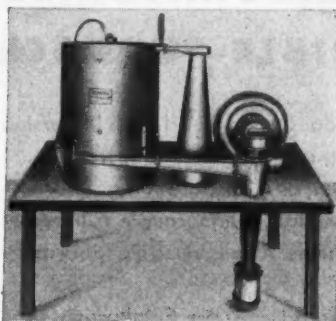
**Table Type Laboratory Spray-Dryer**

*Fits on table 3 x 6 feet*

**Uses** — This laboratory spray-dryer is particularly useful in facilitating the evaluation of the pre-drying steps in any new materials or processes under development. Nearly all aqueous solutions and slurries can be dried.

**Features** — Units incorporating features of this model are ordinarily installed in a large specially constructed housing. Conforms to same general design and construction as large drying plants. As the drying requires only a few seconds, a quart or two of solution can be changed to dry powder form ready for examination in a few minutes.

**Description** — The dryer will fit on a table three feet wide and six feet long. It is simple to operate and designed for easy laboratory cleaning. From one position the operator can observe and control the rate of feed, air inlet, temperature, condition of drying product and quantity of finished product. In spray-drying, only water is removed, the product retaining color, flavor, aroma and inherent chemical and physical properties. Literature giving detailed information on request.



Dryer arranged for operator's convenience  
**BOWEN RESEARCH CORP., Dept. CP, Garwood, N. J.**

When inquiring specify CP A2471  
— see information request blank, pgs. 2-3

**Hose for General Utility and Heavy Duty Service**

Containing data on sizes, number of plies, weight per hundred feet, outside diameters and working pressures, a recently issued catalog section on water hose is available on request. Construction of three types of products in this line is described. These include hose for washing and general utility service and hose for heavy duty service in sugar mills and other processing plants. Copies of Catalog section 4800 on request.

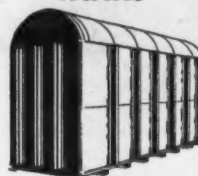
**B. F. GOODRICH CO., Dept. CP, Akron, Ohio.**

When inquiring specify CP A2472  
— see information request blank, pgs. 2-3

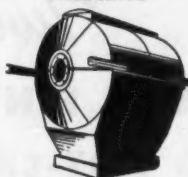


**ALUMINUM  
•  
STEEL  
•  
STAINLESS STEEL  
•  
and  
OTHER ALLOYS**

**Also —  
TANKS**



**MIXERS**



**SCRUBBERS**



**DIGESTERS**



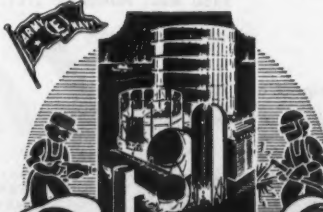
If you have a problem involving special processing equipment, consult with us. Others in the Chemical Industry have found our long and varied experience in metal fabrication a completely satisfactory answer to their requirements for special storage and processing equipment.

Photo above shows a special all-welded phosphorous kettle produced by Stacey Brothers. This kettle is designed with double bottom, the space between the two bottoms being filled with lead. A direct heating mechanism is installed under the lower bottom.

Stacey Brothers produce work to A.S.M.E. and A.P.I. standards, from No. 16 gauge sheet metal up to three inches in thickness, and for pressures as high as 100 lbs. Send us your specifications and drawings. We shall be pleased to submit quotations and recommendations.

**The STACEY BROS.  
GAS CONSTRUCTION CO.**  
ONE OF THE DRESSER INDUSTRIES  
5535 Vine Street  
Cincinnati 16, Ohio

**STORAGE and  
PROCESSING EQUIPMENT**



**Stacey Brothers**

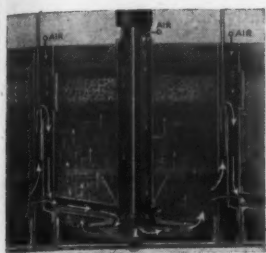
ENGINEERS • FABRICATORS  
ERECTOR • RECOGNIZED  
EXPERIENCE • FACILITIES

When inquiring specify CP A2473 — see information request blank, pgs. 2-3





## PRODUCTION



This cross-sectional view of flotation machine shows how the mechanical type machine operates. Pulp enters side of cell and flows onto rotating impeller where it intensely mixes with air drawn down central standpipe. Minute air bubbles, with the aid of reagents added to the pulp, separate the desired material out of the pulp, by floating it to the top of the cell where it is skimmed off as concentrate.

ings. Undersize and crusher discharge go by gravity to a conveyor which elevates product to vibrating screen with a  $\frac{1}{4}$  inch opening screen cloth. The ore is medium soft to crush and is easily reduced from approximately 10-12 inch maximum size down to minus  $\frac{1}{4}$  inch by two stage crushing. As shown in the accompanying flow sheet, the ore at minus  $\frac{1}{4}$  inch from 400 ton fine ore bin is fed to a 10" x 6" x 18' 9" belt and bucket elevator by a 24" x 16" long adjustable stroke ore feeder. Water is added to the elevator boot to assist pulping the ore, and the discharge from the elevator flows by gravity to a Denver unit flotation cell. The tailings from the unit cell, at approximately 40-50% solids, discharge by gravity to a 3' wide by 8' long single deck vibrating screen with a 10 mesh steel cloth. To avoid overgrinding, the mill is purposely operated at a low pulp density of 40% solids or less, depending on the ore hardness and circulating load. The ball charge consists of 2",  $1\frac{1}{2}$ " and  $1\frac{1}{4}$ " forged steel grinding balls. The ore, in part because of its partially decomposed character, disintegrates quite readily when grinding and wetted with water. However, the graphite flakes are rather tough and by careful treatment are not broken down materially when handled in the manner described. Graphite being readily floatable, requires very little flotation reagents. Kerosene as a promoter and pine oil as a frother are the only two reagents used and are fed in part to the unit cell feed and the balance to the rougher and cleaner flotation circuits. The minus 10 mesh screen undersize from the grinding circuit, at approximately 20-25% solids flows by gravity to the first cell of a Denver "Sub-A" flotation machine (see picture on cover) equipped with hard iron conical disc impellers and wearing plates, hand wheel gates and driven by three 15HP motors, each motor driving two cells. The final cleaned flotation concentrate and Unit cell concentrate, if not cleaned by re-fotation, flows by gravity to a concentrating table. The high grade graphite because of its light, flaky character, floats off the slime section (side) of the table, while sand and middle particles being heavier work toward the concentrate end and thus are effectively removed for subsequent retreatment. In the dewatering process the graphite drains down to about 45 to 50% moisture and approaches within reason normal moistures of 35-40% which could be obtained by vacuum filtration. Drying and sifting complete the process. Continuous research by chemical companies and some of the flotation equipment manufacturers has resulted in many valuable applications of the flotation process. For example, flotation is now being used in the purification of potash salts by separating sodium chloride from potassium chloride. Cleaning of paint pigments is accomplished by flotating out carbonaceous matter from iron oxide. Sodium chloride is purified by removing such impurities as gypsum and carbonaceous matter using flotation.

DENVER EQUIPMENT CO., Dept. CP, Denver 17, Colo.

When inquiring specify CP A2475 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

*"Of Course  
WE'RE SPECIFYING  
SPEEDAIRE"*

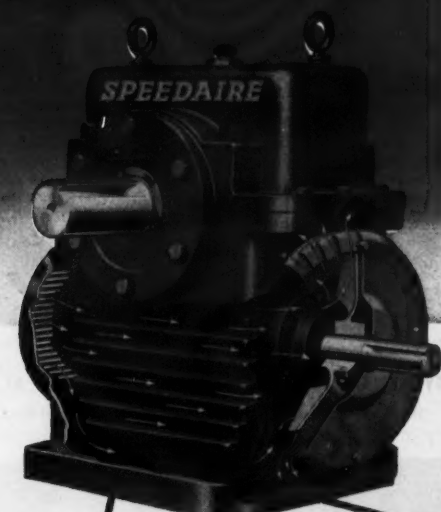
**A GENERAL MANAGER**

*Tells us:*

"Speedaire Units are new—but not strangers, because we have known 'Cleveland' for years. More than 50 Cleveland Worm Gear Speed Reducers have been driving our equipment day and night since 1929—without letdown. . . . We're sold on 'Cleveland'—and your new Speedaire Unit, with its greatly-increased capacity, means we can extend the use of your simple Right-Angle Drive. We are specifying Speedaire on our new equipment too."

THE CLEVELAND WORM & GEAR COMPANY  
3257 East 80th Street • Cleveland 4, Ohio

Affiliate:  
THE FARVAL CORPORATION, Centralized Systems of Lubrication  
In Canada: Peacock Brothers, Limited



**THE NEW SPEEDAIRE BY CLEVELAND  
WILL SELL ITSELF TO YOU, TOO**

- The Speedaire Fan-Cooled Unit gives you More Horsepower for Your Dollar, because:
- The Induction Fan continually removes heat by means of a high-velocity air stream scouring the surfaces of the oil reservoir.
- Speedaire stays cool—delivers up to twice the capacity of standard worm units of equal frame size, at usual motor speeds.
- Speedaire can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle Drive.
- Speedaire is furnished in 6 standard sizes—from 3 to 95 H.P.

*Cleveland*

**SPEEDAIRE** Worm Gear Reduction Units

FAN COOLED

When inquiring specify CP A2476 . . . see information request blank, pgs. 2-3



WHEN  
AN ADHESIVE  
MUST BE

Water, water—everywhere: An overseas shipping carton floating ashore... a cigarette package in a perspiration soaked pocket... an ampoule of penicillin suddenly shifted from refrigeration into tropical humidity. Each with a product to protect. Each with an identity to maintain.

Today, National's moisture-resistant adhesives meet all complexities of surface varieties, application methods and field conditions... with an extra margin of operating safety as insurance against commercial variables.

You can rely on National's application research to give you a bond that keeps moisture in and keeps moisture out. Inquiries are invited—NOW! 270 Madison Avenue, New York 16 and principal cities.

**National**  
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY TYPE OF ADHESION

When inquiring specify CP A2477 — see information request blank, pgs. 2-3



NIAGARA PERMAFLUX spout type magnets are built of Alnico, the strongest magnetic alloy known. Their exclusive "double gap" construction with recessed surface insures effective removal of magnetic impurities from a wide variety of products. Because they require no electrical current and have no moving parts to wear out they furnish dependable and economical protection.

Write today for descriptive literature.

**RICHMOND MFG. CO.**  
LOCKPORT, N. Y.

When inquiring specify CP A2476 — see information request blank, pgs. 2-3

## PRODUCTION

### Process Water Treatments with Sodium Phosphate Glass

Textile, ceramic, oil refining, steel, paper among  
many industries served



#### THRESHOLD TREATMENT

product that is representative of effective use in other industries including: paper making, leather tanning, oil refining, ceramic, cosmetic and steel. Applications also include its use for: dispersing and deflocculating action on pigments, printing pastes, coating mixes, metal cleaning etc.

**Features** — Method of control in these various applications is simple. "Calgon" is used safely in all wet processes; harmless to human skin and hair. Improves and speeds many processing operations.

**Description** — "Calgon" (proprietary phosphate glass) sequesters many metallic ions in the form of soluble com-

**Uses** — Elimination of rancid odor in wool fabrics through employment of vitreous sodium phosphate ("Calgon") into the scour as pictured in the top illustration on the cover is one of the numerous textile applications of this



**CERATHERM**

the new

**CHEMICAL  
STONEWARE**

Unaffected by

**HEAT SHOCKS**

FOR  
TANKS,  
POTS,  
PUMPS,  
COOLING  
COILS, ETC.

Ceratherm 500 heat-shock resistant Chemical Stoneware Jars, Pots and Tanks are completely inert to the action of all corrosive chemicals except hydrofluoric acid and hot caustics. One-piece construction without joints, seams or welds they are

permanently leak-proof and trouble-proof. All surfaces of Ceratherm 500 Jars, Pots and Tanks have a rich mahogany-brown salt glaze finish which makes cleaning as easy as washing a china dish. Available from stock in the more popular sizes.

**U. S. STONEWARE**  
AKRON, OHIO

When inquiring specify CP A2479 — see information request blank, pgs. 2-3

## MOISTURE ENGINEERING

with the KATHABAR System  
automatically and accurately provides

THE  
PROPER  
HUMIDITY

—independently of temperature—

for processing operations in the  
manufacturing of:

DRUGS, PHARMACEUTICALS, CHEMICALS,  
FOODS, OR ANY PRODUCT OR MATERIAL  
AFFECTED BY EXCESS HUMIDITY  
CONDITIONS... Write for information.

SURFACE COMBUSTION • TOLEDO 1, OHIO

**SC Kathabar** System of  
**HUMIDITY CONTROL**  
(ADVANCED AIR CONDITIONING)

When inquiring specify CP A2480 — see information request blank, pgs. 2-3

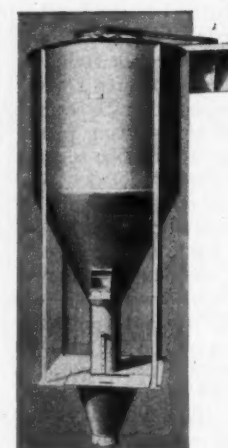
### A Worthy Addition to America's Most Complete Line of Mixers

SPROUT-WALDRON

Style "V"  
MIXER

- ★ QUIET
- ★ RUGGED
- ★ COMPACT
- ★ ECONOMICAL

Completely assembled, except for motor and V-Belts. A one-man unit; requires minimum space and headroom. Its only moving part is dust-sealed. Low horse power. Low cost.



Write for  
Bulletin M-145

**SPROUT, WALDRON & COMPANY**  
155 Sherman St. Muncy, Penna.

When inquiring specify CP A2481 — see information request blank, pgs. 2-3



## PRODUCTION

plexes. It exhibits a pronounced dispersive action on finely divided metal oxides and salts. It is distinguished from orthophosphates and pyrophosphates by its ability to coagulate albumin. Essentially neutral when first dissolved, it reverts slowly to orthophosphate with a decrease in pH values. Some recently reported applications in textile industry provide interesting examples of the manner in which operating difficulties were solved. Piece goods were dyeing up streaky and analysis of fabric indicated that a mineral oil was causing trouble as a different oil had been substituted for oiling the wool stock and was not being removed in the scour. "Calgon" was added to the scour and the streaks in the dyed goods disappeared due to the fact that the chemical's action on lime soap assisted the soap and alkali in the scour to remove the mineral oil in the goods more effectively. In cases where difficulties are encountered with rancid odor in wool fabrics "Calgon" is also effective. For example, as in instance depicted in cover illustration use of "Calgon" in scour and rinse eliminates odor completely. Similar gratifying results in dealing with other problems are experienced such as in inhibiting the poisoning effects of manganese and copper in the rubberizing of rayon and cotton fabrics. Even minute traces of these metals in the cloth prevent proper adherence of rubber to the fabric. The manganese may be a contaminant in the water supply used in processing the fabric. This can be corrected through "Threshold Treatment" (see accompanying illustration) of the water with "Calgon" requiring but 2 ppm of the chemical in the water supply. If the goods have over .005% of either of the two metals, treatment of the cloth in hot water containing 1% "Calgon," based on the weight of the fabric, will render it satisfactory for rubberizing. Tire cords, fabric for raincoats, etc. are materially improved by this treatment. The "Threshold Treatment" inhibits the corrosion of iron pipe lines, reducing the pick-up of iron by the water. The "Calgon" produces a film over the iron surface through adsorption, decreasing the rate of attack of the oxygen in the water on the iron. In the steel industry such problems as scale on gas coolers, plugging of ammonia scrubbers, corrosion in billet rolls, corrosion in doors on open hearth furnaces, etc. are met. In pulp and paper industry 30-40 ppm "Calgon" improves washing efficiency of pulp; reduces chlorine demand-conserves strength. Detailed information concerning specific requirements and the numerous forms in which product is available, including compounds is available on request.

CALGON INC., (Subsidiary Hagan Corp.), Dept. CP, Hagan Bldg., Pittsburgh, Pa.

When Inquiring specify CP A2482 — see information request blank, pgs. 2-3

### Portable Inspection Lights

A wide selection of specialized lighting units including special industrial flashlights, portable inspection lights — battery and transformer models, explosion proof lamps, lamps with insulated guards and portable emergency floodlights. A selection of grounding clamps, sockets and plugs are also illustrated and specifications listed. The inspection units are available in types for various requirements such as inspection of cylindrical recesses, delicate mechanisms, wiring, conduit systems, valve sleeves, etc. The model WOL 17, for example, utilizes bulb permitting passage through opening of 5/32 inch or less. Copy of booklet "Industrial Safety Equipment" on request.

STEWART R. BROWNE MFG. CO., Dept. CP, 258 Broadway, New York 7, N. Y.

When Inquiring specify CP A2483 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945



**HERE'S A PLUG VALVE**  
THAT STAYS "ON STREAM"

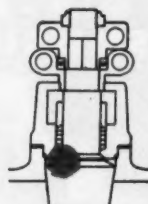
**Worn Stem Packing  
Safely, Quickly Replaced  
UNDER PRESSURE**

**HAMER  
GLAND - PACKED  
PLUG VALVE**

There are many places in refineries, process plants and on ship board for this successful Hamer Plug Valve. Look at the sketches—see how easily and safely the stem packing can be changed, without shutting down the line. Then send for the Hamer Catalog which gives engineering data on this and other Hamer products.

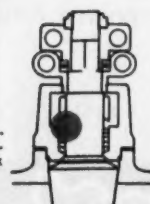
#### RAISE PLUG TO SEAL BONNET

Turning plug adjusting nut to LEFT raises plug, brings lapped shoulder of plug and bonnet into tight sealing contact.



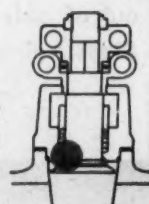
#### RAISE GLAND TO REPLACE PACKING

Only two nuts to remove. Plenty of working room for quick packing replacement.

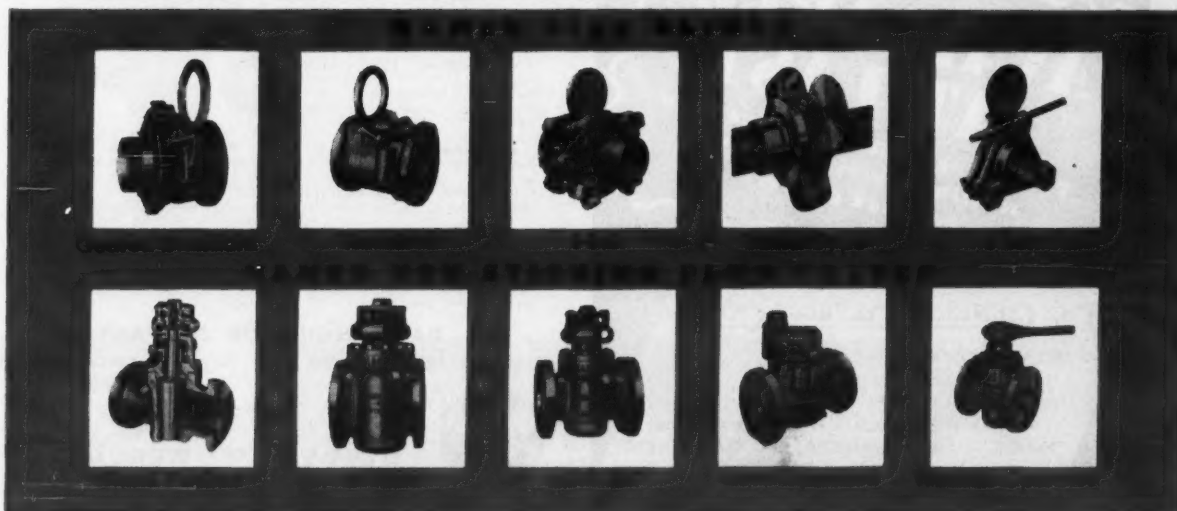


#### LOWER PLUG BY TURNING NUT TO RIGHT

This returns plug to proper adjustment in body, and nut maintains the adjustment for positive turning of plug under all conditions.



**HAMER OIL TOOL CO.** 2919 Gardenia Ave., Long Beach 7, Calif.



When Inquiring specify CP A2484 . . . see information request blank, pgs. 2-3

# Red Star

SODA-ACID  
EXTINGUISHER

**DRENCHES  
FLAME UNDER  
PRESSURE**



Speed is the keynote of Red Star extinguishing action. A strong stream, driven by chemical pressure, is released immediately when the extinguisher is inverted. It has an effective range of 40 feet. Red Star is constructed with exclusive Sure Sweat seam, is easy to use, has no moving parts to get out of order. Underwriters' approved for Class A fires in wood, paper, textiles, etc.

IF IT'S **GENERAL** IT'S DEPENDABLE

**AVAILABLE  
AT LAST!**

The extinguisher you have been waiting for—in lustrous polished copper!

**THE GENERAL DETROIT CORP.**

2270 E. JEFFERSON AVE., DETROIT 7, MICH.

Distributors in principal cities

CHICAGO • DALLAS • NEW YORK

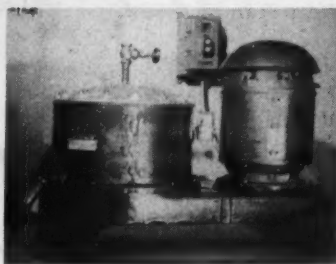
West Coast Affiliate: The General Pacific Corp.

Seattle • LOS ANGELES • San Francisco

## PRODUCTION

### Impactor for Higher Temperature Homogenization at High Speed

*For disintegrating, dispersing, emulsifying solids, liquids, pastes*



IMPACTOR height 22 1/2",  
floor space 17 1/2" x 36"

dispersion of pigments, clays and fillers and for the treatment of materials which will flow or can be pumped into the mill; resultant product can be made in one continuous process.

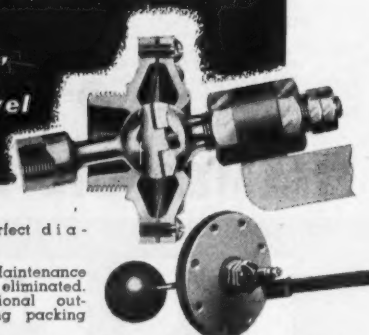
**Features** — A novel liquid seal, which should exceed the life of the bearings and circulating oil pumps with sight gravity feed, have been incorporated into the unit. The speed range from 3600 to 15000 RPM is the only adjustment, (variable to meet individual requirements) and is easily obtained by changing the motor drive pulley and belt. Because of lack of frictional contact, dimensional

**Uses** — For disintegrating, dispersing, homogenizing and emulsifying solids and liquids and pastes. Paints, enamels, sizing compositions, printing inks, latex, sulfa compounds and food products have been successfully treated.

The equipment is also very suitable for

### DAVIS DIA-BALL TRANSMISSIONS

... for  
sensitive,  
accurate  
liquid level  
control



• **Leakproof** Perfect diaphragm seal.

• **Packless** Maintenance nuisance virtually eliminated. Replaces conventional outboard ball bearing packing box.

• **Minimum Friction** Improved ball and socket construction assures accurate transmission of the slightest effort.

• **Straightlined Power** Power always transmitted in a straight line, in the same vertical plane. No breaks or offsets assures utmost in accuracy and sensitivity.

• **Maximum Protection** against leakage of inflammable and highly volatile liquids.

The Davis Dia-Ball transmission unit is an improved packless unit for use on Davis Liquid Level Controllers, and Lever and Solenoid Operated Valves. Send for bulletins for complete details.

**DAVIS REGULATOR COMPANY**

2562 S. WASHTEAW AVE.

CHICAGO 8, ILL.



**DAVIS REGULATOR COMPANY**

When inquiring specify CP A2486 — see information request blank, pgs. 2-3



**MULTIWALL  
PAPER BAGS**  
ARE THRIFTY ON  
3 SEPARATE COUNTS

1. They are tight and siftproof... eliminate siftage losses.
2. They empty clean... reduce retention losses.
3. St. Regis Bag-packing machines speed up filling operations... save manpower.

To find out how Multiwalls can help you save money, while solving your packaging problems, write to your nearest St. Regis office today.

**MULTIWALL**  
MULTIPLY PROTECTION • MULTIPLY SALEABILITY  
**ST. REGIS PAPER COMPANY**  
TAGGART CORPORATION

NEW YORK 17: 230 Park Ave.  
BALTIMORE 2: 2601 O'Sullivan Bldg.

CHICAGO 1: 230 No. Michigan Ave.  
SAN FRANCISCO 4: 1 Montgomery St.

When inquiring specify CP A2487 — see information request blank, pgs. 2-3

**Over 400,000 Sold**



- Quicker Heating
- Small Size
- Light Weight
- One Moving Part
- Low Price

Sold by more than 100 Mill Supply Distributors throughout the U.S.A.

See your supply house or write for Catalog T-1739.

YARNALL-WARING CO., 125 Mermaid Ave., Phila. 18, Pa.

**YARNWAY**

**IMPULSE STEAM TRAP**

When inquiring specify CP A2488 — see information request blank, pgs. 2-3

CHEMICAL PREVIEW

When inquiring specify CP A2485 — see information request blank, pgs. 2-3



## PRODUCTION

changes due to low or high temperatures have no effect on the operation of the mill. The discharge outlet completely immersed in a liquid, has a condenser action.

**Description** — This fluid impactor employs a rotor to produce impact upon liquid by means of centrifugal force. The rotor is of stainless steel, 9 inches in diameter. Stator, also stainless steel, 10½ inches in diameter. Clearances between rotor and stator in excess of twenty thousandths of an inch (.020"). Ample size jackets are provided surrounding the rotor and bearings. Temperature control — due to a novel design and arrangement both these jackets may be used for cooling or, if desired, the rotor jacket may be used to heat the rotor chamber, while the bearing and lower jacket is used separately for cooling. Motor 1 — 7½ HP, AC or DC. Selection of stainless steel, bronze, and iron contact metals upon application. Air seal incorporated into the unit. The impactor has but one moving part, the rotor, and does not depend on the maintenance of close tolerances, but rather on liquid impact at high speeds. First, by centrifugal force against a radial baffle (first point of impact); second by rapid shear on discharging from the baffle into the rapidly teeth of the rotor plate (second point of impact) third by discharging from the rotor teeth against the second radial baffle (third point of impact).

ASBURY CORP., Dept. CP, 127 South Main St., Doylestown, Pa.

When inquiring specify CP A2489 — see information request blank, pgs. 2-3

## Crane Cab Has Clear Plastic Enclosure; Novel Platform Design

*Switch arrangement eliminates double duty for any hand or foot*

**Uses** — This newly designed cab for overhead traveling cranes contributes to operator's efficiency, comfort and safety. All controls are installed for utmost ease in operation, lessening fatigue.

**Features** — Streamlined design, embodying transparent enclosure panels which extend to the floor of the cab permitting maximum vision in all directions over the area covered by the crane. The panels are made of a plastic which is shatterproof and impervious to certain gases common in many plants.

**Description** — This cab is a self-contained unit that may be furnished with any new crane employing magnetic control and it may be applied to existing cranes of any make. Operation is an easy-sit-down operation. Master switches especially designed for magnetic control are located for greatest convenience. Hoist and trolley switches are attached to the right and left arms of the chair. The bridge switch is on the floor and controlled with the right foot. Thus, there is a definite control job for each of the operator's hands and feet but no one limb must serve a double duty as in most conventional crane cabs. An air-cooled air-conditioning unit, especially designed for this cab provides fresh air at any normal temperature desired and gives protection against dusts and fumes. The unit attached to the cab illustrated (in picture on cover) is for use where temperatures do not exceed 140°. Adequate sealing and insulation is provided to insure against excessive losses. A novel feature is the travelling platform which serves both as a vestibule to the cab and as a means for easy access to the exterior side of the window for cleaning purposes. Safety locks on both platform and cab door prevent operation of either except when platform is in proper position.

CLEVELAND CRANE & ENGINEERING CO., Dept. CP, Wickliffe, Ohio.

When inquiring specify CP A2490 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

## THE PUMP THAT KEPT A CANAL FROM RUNNING AWAY



... after a Worthington P.A.E.\* designed it to work without valves

In lifting sea water into a canal, the main problem was the avoidance of backflow through leaky valves when the pump was shut down. After analysis, a Worthington Pump Application Engineer designed a valveless system using a siphon attached to the discharge, which solved the problem most simply and economically, and did away with costly, high maintenance valves.

Whatever your present or future pumping problem may be, you too may find it worthwhile to consult with a Worthington P.A.E. He brings you an engineering service second to none in dealing with problems of hydraulics as well as temperature, pressure, and corrosion.

Worthington Research, for instance, is constantly at work on a wide variety of subjects... performance of propellers... action of highly volatile liquids in pumps



... anti-friction and anti-corrosion properties of metals... handling of numerous chemicals and corrosive-abrasive slurries... development of Worthite.

Write us, or get in touch with our nearest district office to learn why there's more worth in Worthington. Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.

\*Pump Application Engineer.

## WORTHINGTON



THE WORLD'S LARGEST MANUFACTURER OF PUMPS

Steam

Power

Rotary

Vertical Turbine

Centrifugal



When inquiring specify CP A2491... see information request blank, pgs. 2-3



## BEACH-RUSS Rotary Piston High Vacuum PUMPS

### 5 Major Advantages FOR VACUUM PROCESSES

- 1—High Final Vacuum — in the micron range — for wet or dry vacuum processes — assures better product quality, greater safety and economy.
- 2—High Volumetric Efficiency permits use of smaller pumps at lower cost with lower power consumption.
- 3—Slow Speed Operation assures more effective vacuum sealing; less noise and vibration, better lubrication and longer pump life.
- 4—Corrosion Resistant Construction permits handling of corrosive vapors, without fear of wear and frequent breakdown.
- 5—Broad Range of Capacities — from 15 to 750 c.f.m. for wet or dry vacuum; complete unit with motor operated V-belt drive.

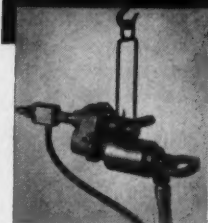
Write for Catalog No. 80

## BEACH-RUSS COMPANY

Vacuum Pumps • Compressors • Liquid Pumps  
46 CHURCH ST. NEW YORK 7, N. Y.

When inquiring specify CP A2492 — see information request blank, pgs. 2-3

## Want to clean small tubes?



Two-speed geared suspension motor, air or steam drive. One of four suspension motor types.

Bring your  
TUBE CLEANING  
problem to

Tubes as small as 1/2 inch I.D., curved as well as straight, can be cleaned with the Elliott 600 Series Cleaner motor (air or steam driven) armed with the right cutter or brush. The photo above shows this cleaner in various sizes.

For very hard deposit in straight tubes, use an Elliott suspension cleaner with all the power of a large outside motor, steam, air or electric. Write for the bulletin "Cleaning Small Tubes."

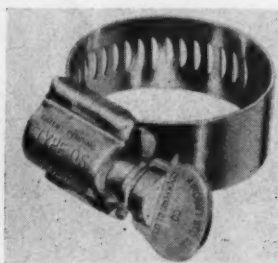
**ELLIOTT** COMPANY  
Tube Cleaners, Dept.  
SPRINGFIELD, O.  
Elliott Cleaning Co.  
Bureau of Tube

When inquiring specify CP A2493 — see information request blank, pgs. 2-3

## PRODUCTION

### Stainless Steel Hose Clamps

Combine light weight, strength, flexibility with  
rust resistant qualities



HOSE CLAMP has mechanically interlocked saddle

tirely of rust-proof material. A new mechanically interlocked saddle permits elimination of welds at that vital point. As a consequence durability and holding power are achieved. Other features are openable band, vibration-proof holding, wide range, long take-up, uniform pressure, no distortion of thin wall tubing, ability to hold high pressures without leakage.

Description — Available in various popular sizes and line will include all nominal sizes from 1/2 to 4 1/4 inches.

AIRCRAFT STANDARD PARTS CO., Dept. CP, 1727  
19th Ave., Rockford, Ill.

When inquiring specify CP A2494 — see information request blank, pgs. 2-3

Uses — These all stainless steel seal hose clamps, designed for service where conditions require highest corrosion resistance and provide unusual durability and holding power.

Features — Although lighter and thinner, the stainless steel bands have greater strength and flexibility than carbon steel clamps and offer the advantage of being made en-

## SCHAUB *Trapless* Heat Reclaim SYSTEM

assures  
**MORE PROFITS**

from every  
**Sales Dollar!**

**More Steam Capacity  
Lower Labor Costs**

Cut productive labor costs sharply by keeping equipment at uniform working temperature 60 MINUTES PER HOUR... Avoid costly delays waiting for machines to re-heat — particularly when production demands are heavy. A Schaub Trapless Heat Reclaim System assures full eight hours output in an eight hour day — with the same boiler and the same fuel.

Let us tell you how Schaub Systems are cutting operations costs and building extra profits for others. Write today for full information.

Extra advantages of  
Schaub "Heat Reclaim"  
Include:

1. Transfer of all flash heat to boiler feed water;
2. More steaming capacity;
3. Better condensation drainage and air removal;
4. Faster capital investment returns from increased fuel savings.

**FRED H. SCHAUB ENGINEERING CO., INC.**

329 W. Huron Street, Chicago 10, Illinois

## The Key to Boiler Room Efficiency **SCHAUB SYSTEMS**

When inquiring specify CP A2496 — see information request blank, pgs. 2-3

## NEW PRINTER- DEVELOPER



THIS new Bruning Model 41 BW Printer-Developer meets the demands of users who desire efficient production of medium quantities of Black and White Prints, but do not wish to invest in a high-volume machine.

Printer and developer are combined in a single compact unit which requires no plumbing connections. An entirely new method of cooling assures uniform cylinder temperature and consequent uniformity of print exposure. Light source of the printer is a 2,000 watt glass mercury vapor lamp — and uniform distribution of light is assured over the entire printing area of the cylinder. The developer employs a new type ironing roll producing flat, dry BW Prints ready for use. Control of printing and developing operations is exceptionally simple. For more information, write Charles Bruning Company, Inc., 4706-14 Montrose Avenue, Chicago 41, Illinois.

**BRUNING SINCE 1897**

When inquiring specify CP A2497 — see information request blank, pgs. 2-3

## You can safely run tests **BLINDFOLDED** in a Despatch Oven



**DEPENDABLE**

**UNIFORM**

**ACCURATE**

Because it contains no off-temperature zones, you can safely place important test-samples anywhere in a uniformly-heated Despatch Laboratory Oven.

Also with the unfailing accuracy in agreement with thermostatic control setting, you can rely upon the dependability of all of the tests you run.

**DESPATCH**  
OVEN COMPANY

MINNEAPOLIS 14  
MINNESOTA, U.S.A.

Write for  
Bulletin 105

When inquiring specify CP A2495 — see information request blank, pgs. 2-3



## TANK RUSTING PREVENTED *Electrically*

Modern, service-proved Rusta Restor method . . . using safe, low voltages . . . giving lasting protection . . . for the cost of just one good paint job.

Engineered to the individual tank and water conditions, Rusta Restor the modern, cathodic (i.e. electrical) equipment maintains the tank in a "electro-negative" or "neutral" state that gives positive and lasting protection against rusting. Rusta Restor is modest in first cost and cheap to operate. Hundreds of installations from coast to coast are your assurance of efficient reliable performance. Send for full details today.



Send for Catalog

**RUSTA RESTOR**  
THE PROVEN CATHODIC (I. E. ELECTRICAL) RUST PREVENTIVE  
A DIVISION OF  
**THE JOHNSTON AND JENNINGS COMPANY**  
855 ADDISON ROAD • • • CLEVELAND 14, OHIO

WACO VAPOR CONSERVATION AND FIRE PREVENTION EQUIPMENT FOR VOLATILE LIQUID STORAGE TANKS. STOWE STOKERS. HAMMERED FORGINGS.

When Inquiring specify CP A2498 — see information request blank, pgs. 2-3

## THE "HAMMOND" Line

ELEVATOR  
BUCKETS  
SCREW  
CONVEYOR  
HANGERS  
END-THRUSTS  
and  
SCREW  
CONVEYOR  
ACCESSORIES



The patented design of this bucket offers highest efficiency in elevating granular materials, increasing capacities up to 100%.



Nothing like it for elevating flour and other soft stocks. Doesn't pack. Discharges clean.



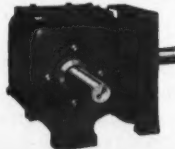
Improved design made in standard and heavy gauges.



Designed to offer minimum obstruction to flow of materials.



HELICOID OR SECTIONAL FLIGHT SCREW CONVEYOR



"ACE" COUNTER-SHAFT BOX ENDS A revolutionary improvement in Screw Conveyor Drives.

Write for Bulletin 1242, illustrating the many outstanding material handling developments we have to offer.

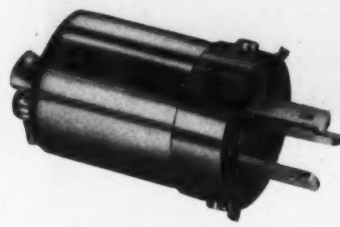
**Screw Conveyor Corporation**  
629 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS MANUFACTURERS  
TRADE MARK REG. U.S. PAT. OFFICE.

When Inquiring specify CP A2498 — see information request blank, pgs. 2-3

## PRODUCTION

### Circuit Breaker Plugs With or Without Locking Device

Eliminate dangers of overloading, stalling or rotor locking on fractional hp motors; guards against fires due to grounds on coils, etc.



THREE PRONG PLUG

Uses — Protective replacement for conventional 3 wire plugs on 125-250 v., single phase AC current. For added convenience and utility in operation of various types of electrically powered industrial units and equipment.

Features — The three-prong circuit breaker plug is designed to withstand the rough usage of ordinary shop procedure. Available in 1 through 10 ampere ratings, this plug should be used at equal rating to the rated capacity of the equipment it is to protect. Approved by Underwriters' Laboratories, Inc. this plug bears the UL label in the 2, 3, 4, 5, and 6 ampere ratings. An illustrated folder illustrates a selection of circuit breaker plugs, 2 and 3 prong, some with locking device; also adapter and outlet plates with locking devices on request.

HOPAX DEVICES, INC., One, North La Salle St., Chicago 2, Ill.

When Inquiring specify CP A2500 — see information request blank, pgs. 2-3

## ACCURACY..



that technicians need...

## KOCH CABINET OVENS

When you set the controls on your KOCH Cabinet Oven for a certain temperature, you get it . . . RIGHT ON THE LINE, and in all parts of the oven.

Made in 7 standard sizes — for electric, gas, steam or oil heat — KOCH Cabinet Ovens come to you completely equipped, ready for quick installation. Wide range of special equipment is available.

Get the whole story — send for FREE Bulletin DB 39 — now!

KOCH also designs and builds complete conveyorized drying and baking systems for the process industries.

GEORGE  
**KOCH**  
SONS, INC.  
INDUSTRIAL  
EQUIPMENT  
EVANSTON, ILL. MILWAUKEE, WIS.

When Inquiring specify CP A2501 — see information request blank, pgs. 2-3



## SOLVES MANY PROBLEMS IN CORROSION RESISTING APPLICATIONS

★In many applications Jessop Stainless-Clad Steel affords service equivalent to solid stainless at a cost saving that renders this composite metal economically feasible, whereas the cost of solid stainless may be prohibitive.

Jessop Stainless-Clad Steel can be made of various percentages of cladding, ranging from 10% to 50% of the total sheet or plate thickness; with this advantage it is possible to provide sufficient stainless to meet the corrosion problems and supply enough backing material to take care of structural strength requirements.

Recent advances in production methods enable us to produce stainless-Clad steel in lighter gauges down to 1/4" thick, in 150" widths and in lengths ranging up to 200"

Jessop Stainless-Clad Steel is a widely adaptable material. It can readily be machined, welded or otherwise fabricated. If you have applications indicating the need of stainless protection, consider Jessop Stainless-Clad Steel. Write for booklet.

This 141" diameter Head for chemical processing vessel was fabricated in one piece from Jessop Stainless-Clad Steel.

**JESSOP STEEL CO.**  
WASHINGTON PENNA.

When Inquiring specify CP A2502 — see information request blank, pgs. 2-3

Photoswitch Electronic Controls at work for a large yeast manufacturer.



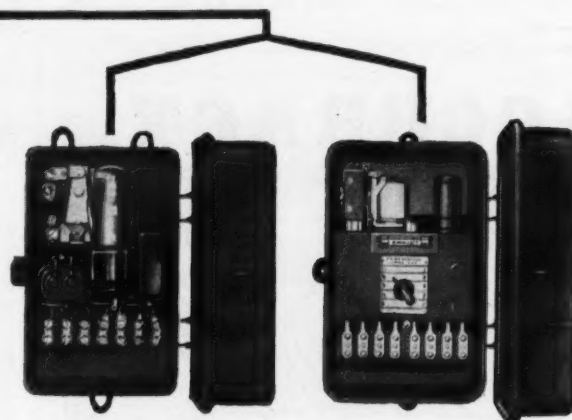
## Save Manpower—put electronics to work

As did the yeast manufacturer whose installation is pictured here. Before Photoswitch went on the job, a full-time operator was needed to guard this tank against excessive foaming. Now it's done automatically—with a standard Photoswitch Electronic Level Control.

As the photograph illustrates, a probe or electronic "finger" extends into the tank. When rising foam reaches this finger, a signal is relayed to the level control which opens a solenoid valve permitting an anti-foaming agent to flow into the tank. A Photoswitch Electronic Timer used in addition controls the interval during which the valve is held open and regulates the amount of anti-foaming agent added. Operation is precise—no chemicals are wasted—and a cleaner product results.

★ ★ ★

If there's a spot in your plant where automatic control can replace much-needed manpower, why not investigate Photoswitch electronic methods? With Photoswitch at work, there's no problem of labor turnover or absenteeism. Nor is there even the question of upkeep common to other automatic control systems. Electronic controls contain no moving parts to wear or fail in operation—give dependable day-in day-out service, with negligible maintenance, over an unusually long life.



Signal from electronic "finger" at tank actuates Photoswitch Level Control (left) and Timer (right) mounted on control panel.

Photoswitch Electronic Controls are at work today throughout industry controlling levels automatically, timing, counting, inspecting, safeguarding—performing hundreds of specialized operations. Whatever your control problem, let us have the details, and we may have the answer—pre-engineered and packaged, ready for quick and easy installation.

L4

Electronic Controls by  
**PHOTOSWITCH** INCORPORATED

CAMBRIDGE 42, MASSACHUSETTS • District Offices in All Principal Cities

—When inquiring specify CP A2503 . . . see information request blank, pgs. 2-3—

## PRODUCTION

### Cast Steel Inverted Bucket Trap

*Inverted bucket and valve lever of 18-8 stainless; valve and seat chrome steel, hardened, ground and lapped*

**Uses** — Designed for pressures up to 600 pounds, or where all steel fittings are desired, a new cast steel inverted bucket steam trap with slide inlet, side pipe connections is available in three sizes of connections.

**Features** — One of the features of this trap is that the cap and interior mechanism can be removed for inspection or repair without breaking either the outlet or inlet connections. The cap and the working parts are removed as a unit by unbolting the cap, leaving the body intact in the line.

**Description** — The trap is available with 1/2", 3/4" or 1 inch screwed or flanged connections. Flanges are welded into the trap body. Height is 11 1/4"; dimensions between the flanges range from 11 3/8" to 12 1/8" depending on pipe sizes.

ARMSTRONG MACHINE WORKS, Dept. CP, Three Rivers, Mich.

When inquiring specify CP A2504—see information request blank, pgs. 2-3

### Rubber Tired Wheels for Trucks, Wheel Barrows and Portable Machinery

Industrial wheels with pneumatic and cushion rubber tires in several wheel diameters are described in a handy bulletin. The bulletin lists cushion tired wheels in 6, 8, 10, and 16 inch diameters covering a capacity range of 135 to 650 pounds. Pneumatic type wheels — 4 ply high grade tire with tube come in 10, 12, 16 wheel diameter sizes. The complete line of wheels offered by this organization cover requirements of hand trucks, portable machinery and where wheels of 3 to 16 inches are required. Bulletin on request.

HUTTON WHEEL CORP., Dept. CP, 5579 Pershing Ave., St. Louis 12, Mo.

When inquiring specify CP A2505—see information request blank, pgs. 2-3

### Fused Silica & Fused Quartz Products

A booklet of unusual appeal to those who are concerned with fused silica and fused quartz products has recently been issued. The foreword emphasizes the wide recognition gained by the inherent advantages of these products and their use in chemical and metallurgical processing, the electrical industry, electronics and optics. The booklet briefly outlines the outstanding characteristics of the products and illustrates a few of the articles used in laboratories, chemical and metallurgical plants. A partial list of the products includes: absorption vessels, applicators, (transparent) beakers, (translucent) bends, boats, bottles, grids, popes, retorts, tees, etc.

AMERSIL CO., INC., Dept. CP, 60 Wall Tower, New York 5, N. Y.

When inquiring specify CP A2506—see information request blank, pgs. 2-3

### Installation & Operation of Autoclaves

Six page bulletin illustrates and describes autoclaves, listing many applications in curing, hardening, impregnating operations such as in connection with castings and ceramic products and also in dye, rubber, paint, cellulose industries, etc. Features of the maker's special cover are emphasized and practical suggestions on installation and operation are given. Copies on request—Bulletin 244.

JACKSON & CHURCH CO., Dept. CP, Saginaw, Mich.

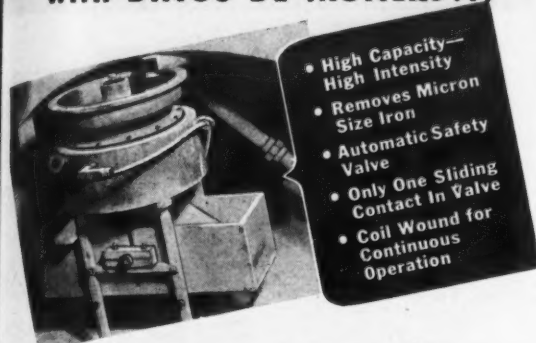
When inquiring specify CP A2507—see information request blank, pgs. 2-3

CHEMICAL PREVIEW



# GREATER CAPACITY

for wet magnetic separation  
with DINGS DE-IRONERS...



• The greater capacity of Dings De-Ironers means more profitable removal of iron from ceramic slip and glaze, oils, inks, foods and many other liquids.

This improved wet separation is worth investigating. While you're thinking about it, write for the complete story on Dings De-Ironers.

"Separation Headquarters" Since 1899

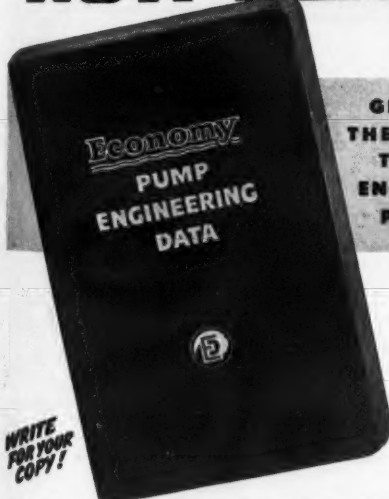
**DINGS MAGNETIC  
SEPARATOR COMPANY**



510 E. Smith Street Milwaukee 7, Wis.

When inquiring specify CP A2508 — see information request blank, pgs. 2-3

# NOW READY



**GIVES YOU  
THE ANSWERS  
TO PUMP-  
ENGINEERING  
PROBLEMS**

A timely contribution to the pump industry—416 pages of factual data just when vital post-war problems require authentic facts, sound experience and advanced engineering practice.

Here, under one cover, are hundreds of handy tables and diagrams you need every day. Revised, improved and new data governing the correct layout and installation of sewage, drainage, processing, heating systems, etc. Describes clearly and exactly the way to do the job right. Indispensable to Executives, Engineers, Plant Managers, Maintenance Men, etc. Sent free in response to requests on business letterheads.

**ECONOMY PUMPS, INC.**  
HAMILTON, OHIO - U. S. A.

When inquiring specify CP A2509 — see information request blank, pgs. 2-3

JULY - AUGUST, 1945

# DIRECTORY of products in this issue

You will find listed below the names of products and new literature items described in this issue, with page reference on each

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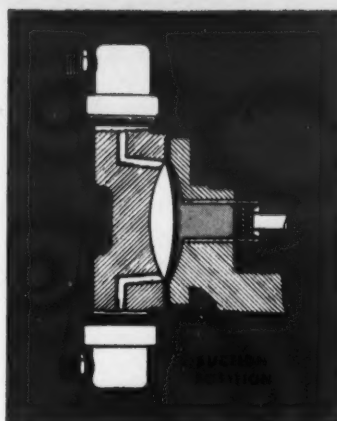
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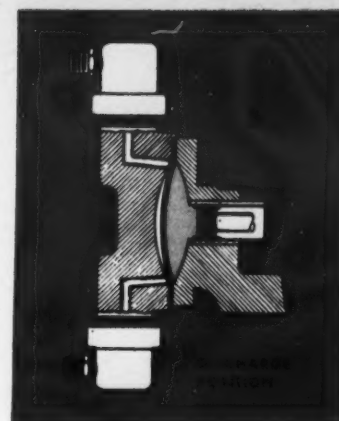
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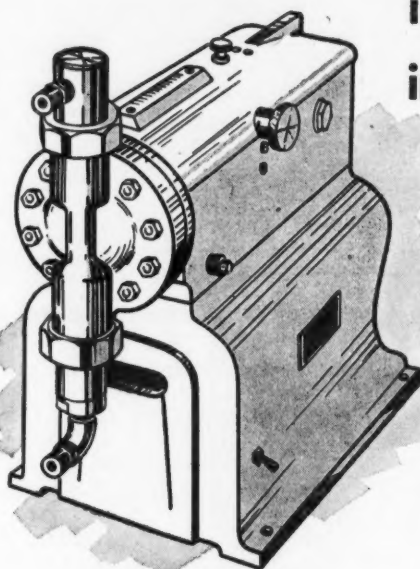
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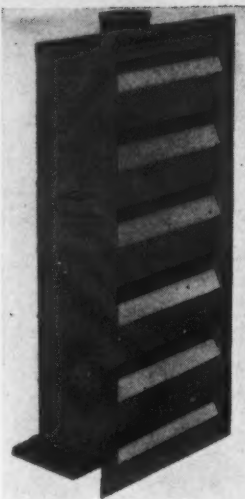
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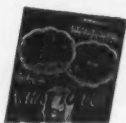
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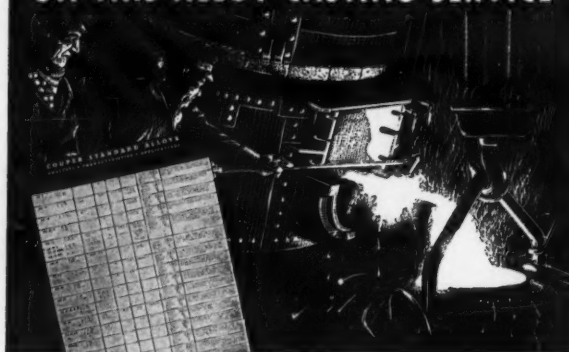
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... by Cleaner  
Faster Separation  
—any Mesh—with  
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Whether you must sift a chemical, ceramic, metal powder, plastic, pigment, toilet preparation or food product, with an Abbe-Blutergess Sifter, you are assured of more complete separation and recovery of maximum "fines" of desired mesh in minimum time.

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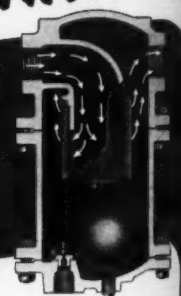
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### CHEMICAL PREVIEW

737 N. Michigan, Chicago 11, Ill.

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Has a recent use of your equipment solved a difficult chemical process plant problem? The equipment may be new or from your standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) How was equipment used — in standard or modified form? (4) Results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address the Editors.

**CHEMICAL PREVIEW**  
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## "That's Interesting"

It Could Be Called  
"Measure Island"

Miniature tropical islands enclosed in glass containers not much larger than cookie jars are used to measure the effects of moisture, bacteria and fungus growths, heat as encountered in the South Pacific, Africa, etc. Equipment and apparatus "marooned" on one of these miniature islands for a month undergoes the equivalent of six month's to one year's exposure in the Panama Canal Zone. (Westinghouse News Front)

## Mats of Bonded Glass Fibers Used For Underground Pipe Wraps

Thin, porous mats of bonded glass fibers, developed for use as retainer mats in storage batteries are being used in roll form as wrapping for underground oil, gas and other pipe lines. The material can be wrapped around bitumen or coal tar coated pipe, forming a continuous water-tight bond. These mats of Fiberglas are also being employed as base material for gaskets and sheet packing and act as carrying medium for synthetic resins suitable for applications requiring resistance to heat, oils and acids. In making these fibers into mats several types of binders may be used according to requirements. Some of these are starch, gelatine, furfural or phenolic. The mats are produced in thicknesses ranging from 0.010 of an inch to 0.050 of an inch. Standard widths are 22 and 36 inches and length of rolls 150 and 300 feet.

## New Plants to Produce 45,000,000 Pounds of Channel Black

A new government-financed channel type carbon black plant has recently been completed and is now in operation at Sunray, Texas. A second plant is soon to be completed at Witco, New Mexico. The combined production will be 45,000,000 pounds of channel black per year. (Witco Chemical Co.)

## Bitter Soya Taste Yields to Alcohol

The bitter, beany flavor of present day soya flour has limited this mineral and protein rich flour in bakery products. A new alcohol process for extracting the soya bean oil, however, gives promise of overcoming this handicap. According to a recent report, the new process leaves a sweet eating bean for grinding into flour which can be used in greater proportions for enriching bakery products.

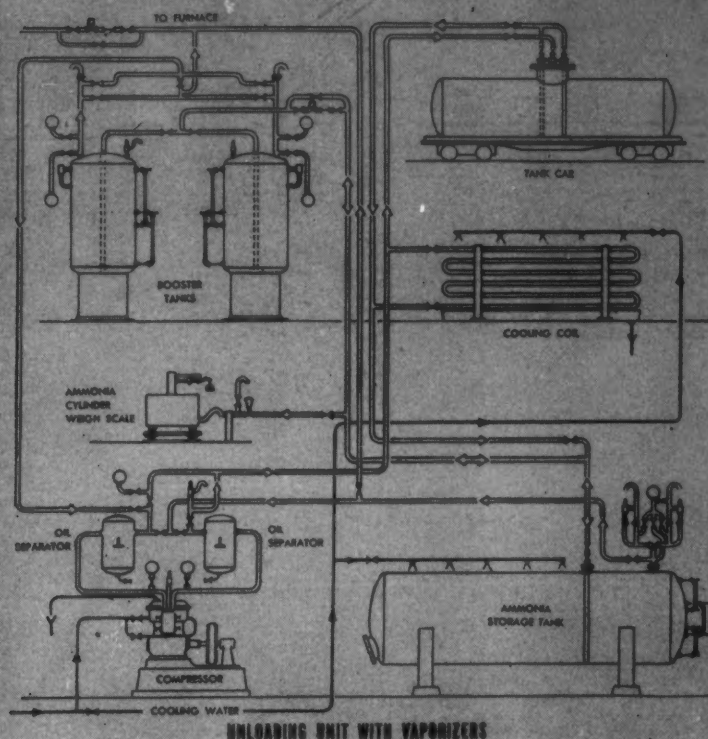
## The Story of Music At Work

Planned music for industry has been used with some interesting results during these war years. The idea, of course, is not new and the fact that the association of music with work is spontaneous is attested by the chant of the Volga boatmen and the plaintive song of the cowboy. The idea intrigued Thomas Edison after he had invented his phonograph. Investigations indicate that music in industry is well received by almost all workers and that it aids in speeding up work, making difficult work easier and lessens fatigue. The progress that has been made in bringing music to industry is of course due to progress in electronics. (Data — Executone Communications Systems — booklet — "The Story of Music at Work.")

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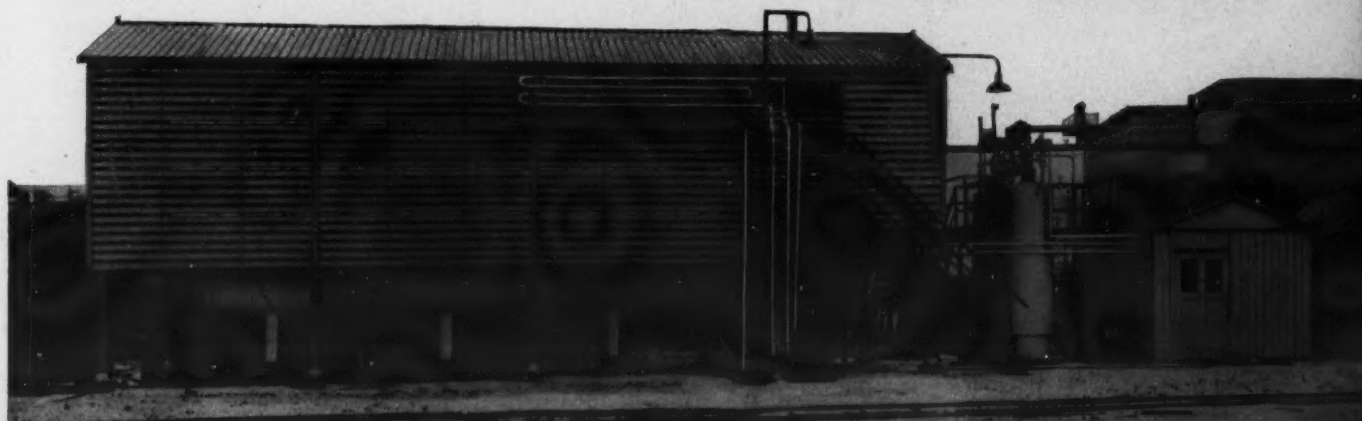
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Processing**

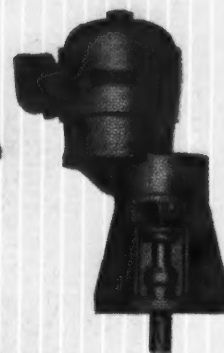
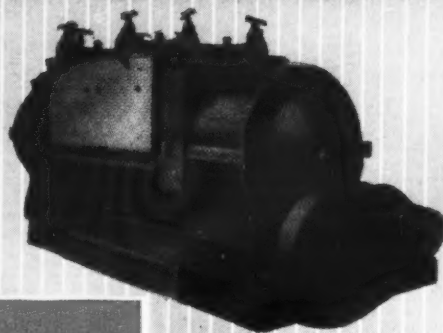
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